AN ANALYSIS OF PROFESSIONAL LEARNING COMMUNITIES' DELIBERATION ON TEACHER THINKING

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ABSTRACT

Many school districts are creating professional learning communities (PLCs) in which teachers are grouped for the purpose of collaboratively examining ways to improve student learning. PLCs are based on the assumption that actively engaging teachers in professional conversations will increase their knowledge and enhance student learning. This case study sought to gain insight into these conversations through the lens of deliberative democratic theory. According to this theory, if participants (i.e. teachers) offer reasoned opinion expressions and are inclusive of all group members, then they will be challenged to revise their viewpoints, leading to instructional change. The study involved observations of and interviews with three PLCs comprised of elementary, middle, and high school teachers within the same district. It was determined that these groups casually deliberated by sharing opinions on resources and teaching strategies that could be used with students. They listened to one another, shared personal experiences, asked questions, participated equally, and engaged in the topics of discussion to inform their own professional decisions. The teachers reported sharing instructional resources and strategies as a benefit of participating in a PLC, although the implementation of those resources was strongly influenced by a teacher's self-efficacy with the strategy. Teachers also reported the difficulty they experienced in deeply analyzing student data, not wanting to make a judgment about a group member's past performance. Overall, teachers stated that their perspectives were expanded based on the deliberations they held.

Key Words: Professional Learning Community, Deliberation, Collaboration

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CHAPTER I—INTRODUCTION

Problem

Across the United States, reform efforts that bring new standards are raising expectations for students and, subsequently, for teachers. Higher academic standards require changes in teaching practices as teachers need to deepen their content knowledge and learn new teaching methods to help students achieve at high levels (Corcoran, 1995). Schools need to bolster teacher skills and knowledge to ensure that every teacher is able to teach increasingly diverse learners, are knowledgeable about student learning, competent in complex core academic content and skillful at the craft of teaching (Darling-Hammond, Chung Wei, Andree, Richardson, & Orphanos, 2009). A report by the National Staff Development Council suggests that improving professional learning for educators is a crucial step in transforming schools and improving academic achievement (Darling-Hammond et al, 2009.).

To meet this need, many school districts across the United States are turning to the concept of professional learning communities (PLCs). This organizational structure places teachers in groups and asks them to work collaboratively. At its core, the concept of a PLC rests on the premise of improving student learning by improving teaching practice (Vescio, Ross, & Adams, 2008). Teachers meet on a regular schedule in learning teams organized by grade-level or content-area assignments and share responsibility for their students' success (Darling-Hammond et al., 2009). These teams examine student data to determine the areas of greatest student need, pinpointing areas where additional educator learning is necessary, identifying and creating learning experiences to address these adult needs, developing powerful lessons and assessments, applying new strategies in the classroom, refining new learning into more powerful

lessons and assessments, reflecting on the impact on student learning, and repeating the cycle with new goals (Darling-Hammond et al.).

Phillips' (2003) study of a middle school that formed learning communities found student achievement scores rose dramatically over three years. Teachers in that school attributed the increases to "teacher personal learning, the heightened awareness, and the work done in our departmental study groups" (Phillips, p. 256). Vescio et al. (2008) reported that in eight studies that examined the relationships among teachers' participation in PLCs and student achievement, student learning improved as a result of the work accomplished in these communities. Stoll, Bolam, McMahon, Wallace, and Thomas (2006) referenced the work of Louis and Marks (1998), in which they found that students achieved at higher levels in schools with positive professional communities; this finding was explained by teacher focus on "authentic pedagogy" (Stoll et al., 2006, p. 230). In other words, teachers were involved in serious educational conversations applying deep knowledge and connecting with partners beyond the classroom. In their study, Hollins, McIntyre, DeBose, Hollins, & Towner (2004) demonstrated improved literacy for African-American students, and stressed the importance of a group facilitator who worked to ensure that efforts in collaborative meetings were always rooted in improving test scores and other measures of student achievement.

Research supports the idea that PLCs hold great promise in improving instruction and addressing student learning needs (Bolam, McMahon, Stoll, Thomas, & Wallace, 2005; Corcoran, 1995; Stoll et al., 2006; Vescio et al., 2008). However, just forming teachers into groups does not necessarily mean that they will function effectively and perform the necessary tasks to change instruction and improve student achievement (Dufour, 2004). Supovitz (2002) found when policy makers in Cincinnati created team structures, forms, and mechanisms to

propel teachers to higher quality instructional levels, the teams *could* change their instructional practices. However, these teams did not have access to opportunities and experiences that would model for them how to engage in the disciplined investigations necessary to develop and sustain communities of instructional practice and, therefore, generally did not develop communities around instruction.

Why are some PLCs able to accomplish more than others? Stoll et al. (2006) and Bolam et al. (2005) found characteristics of effective PLCs were shared values and vision, collective responsibility, reflective professional inquiry, collaboration, group as well as individual teacher learning, mutual trust, inclusive membership and openness, networks and partnerships. These characteristics suggest that the PLC members engaged in thoughtful conversations, which are designed to move teacher and student learning forward.

The deliberative democratic theory whose early influencers were John Rawls and Jurgen Habermas, and which focuses on reasons given to support opinions and on inclusion in group interaction, provides a basis for better understanding the dynamics of PLC conversations and offers this researcher insight into changed thinking that resulted from these discussions (Dutwin, 2002). The theory holds that groups that engage in thoughtful deliberation have the opportunity to form richer opinions and gain new insights that will impact their instructional decisions, and that deliberation is not merely the accumulation of individual opinions but a communicative process where different ideas are expressed, adjusted, and compromised (Dutwin, 2002).

In a small school district in the Midwest that is attempting to implement the PLC approach, the feedback from teachers varies. Some teachers reported to the researcher that the work of the PLC in which they are involved is scattered or turns into busy work. On the other hand, some teachers say that they work together well and have productive conversations. As

more districts begin to invest in creating PLCs, they need to know whether or not the conversations taking place will produce the desired benefits. This study examined the impact that deliberation had on PLC conversations and how those deliberations affected teachers' instructional decisions. The present research provides data and insights to the participating school district, which may contribute to their determination of whether the PLCs are a powerful approach to advancing student learning in their community.

Argument

Improving a teacher's effectiveness can, in turn, improve student learning more than any other single factor (Wright, Horn, & Sanders, 1997). Students assigned to highly effective teachers are more likely to attend college, attend higher-ranked colleges, earn higher salaries, live in higher SES neighborhoods, and save more for retirement; they are also less likely to have children as teenagers (Chetty & Rockoff, 2011). High quality teachers raise student performance; therefore, the most important thing a school can do is to provide its students with good teachers (Wright et al., 1997).

Historically, professional development for teachers consisted of mandatory in-service programs facilitated by outside experts who presented "irrelevant, sometimes amusing, often boring prepackaged information" (Wilson & Berne, 1999, p. 24). Most researchers agree that such a design for professional development of teachers can too often lead to unfocused, fragmented, low-intensity activities that do not result in significant changes in teaching practice (Corcoran, 1995). Little (as cited by Wilson & Berne, 1999) suggested that effective staff development contains the following elements: (a) collaboration among teachers, (b) collective participation in learning activities and implementation, (c) a focus on curriculum and instruction,

(d) enough time for teachers to explore topics, and (e) encourages professional collegiality and exploration.

How can a district help to raise the overall effectiveness of its teachers in light of this research and the accompanying pressure policy makers are asserting to raise student test scores? Many school districts are creating PLCs in which teachers are grouped for the purpose of collaboratively examining ways to improve their teaching practices and student learning. PLCs are based on the assumption that actively engaging teachers in conversations will increase their professional knowledge and enhance student learning (Vescio et al., 2008). Using this model, every professional in a school building is expected to engage with colleagues in the ongoing exploration of four crucial questions:

1. What do we want students to learn?
2. How will we know they have learned it?
3. How will we respond when a student experiences difficulty in learning?
4. What will we do for those students who already know it? (Dufour, 2004).

Through this exploration, teachers can learn from each other as well as from internal and external resources they seek out, which has the end result of enhancing their own knowledge base.

Many educational reformers believe that increasing teacher learning will improve student academic achievement (Phillips, 2003). A "learning-enriched" (Stoll et al., 2006, p. 227) teachers' workplace appears to be linked to better student academic progress. In a case study of a middle school, teachers chose to focus on improving students' academic achievement by increasing their opportunities to participate in authentic learning communities (Phillips,2003).

As a result of these communities, the curricular changes they instituted dramatically increased overall student achievement for all socioeconomic and academic groups (Phillips,2003).

However, Rick Dufour (2004), author of numerous books on PLCs, cautioned that not all such communities are created equal. People use the term PLC to describe every imaginable combination of individuals with an interest in education and, as a result, the PLC is in danger of losing all meaning (Dufour, 2004). This variability has resulted in confusion about the fundamental concepts of a PLC, followed by inevitable implementation problems (Dufour, 2004). Dufour asserts that the mere act of grouping educators will not result in highly functioning PLCs. If a PLC does not focus on teacher learning and student achievement, then the group is unlikely to advance growth in those areas. Supovitz (2002) found that measurable improvement in student achievement only occurred in PLCs that focused on changing the instructional practices of the participating teachers.

Stoll et al. (2006) and Bolam et al. (2005) reported characteristics that effective PLCs develop through their collaborative conversations and communal work that enabled them to maintain a strong focus on improving student learning and instructional decisions. Those characteristics include: (a) shared vision and values—teachers have a continual focus on ultimately improving student performance; (b) collective responsibility—teachers take joint responsibility for their students' performance; (c) reflective professional inquiry—teachers analyze the needs demonstrated by student data and reflect upon and deliberate about the best instructional practices to meet those needs; (d) collaboration—the group collectively discusses and develops new ideas and ways to address student needs; (e) individual and group learning—group members learn alongside their colleagues as they share their opinions and experiences surrounding instructional practices; (f) trust—group member relationships are built on trust and

members feel safe; (g) inclusive membership—group includes not just teachers but other support staff in the building and (h) openness—group creates networks with partners outside of the school. The assumption, therefore, was that the presence of these characteristics in meetings is evidence for an effective PLC (Stoll et al., 2006). However, in many PLCs, the majority of time was devoted to issues other than instruction, such as discipline, paperwork, and administrative tasks (Supovitz, 2002). Often, neither individual nor organizational activities nor group discussions devoted to professional growth were closely linked to district goals for student performance (Corcoran, 1995). In cases where a strong linkage was found, inconsistency and lack of follow-up weakened potential effects on practice (Corcoran, 1995).

The deliberative democratic theory can serve as a framework through which PLC discussions are analyzed. Deliberation is characterized by reason giving and inclusion. Reasons are more than just opinions; they offer a justification for a stated position related to the topic under consideration, which increases the information acquired by the group members and affects individual decision-making. Inclusion involves listening to all voices within the group. Therefore, as reason giving and inclusion increase, so does the likelihood of actors changing their positions (Schneiderhan & Khan, 2008). Discussion that is not motivated by reason giving and inclusiveness is unlikely to produce results that are different from just allowing members to consider a matter on their own (Schneiderhan & Khan, 2008). Schwab argued that group deliberation is essential to curriculum decision-making because only groups can gather the evidence and expertise needed for judgmental processes (as cited in Dutwin, 2002). This perspective provides additional insights into the types of discussions in which the teachers are engaging and whether or not those conversations are leading to instructional change.

In order to determine how deliberation in PLCs influences teaching and learning in schools, the present case study was undertaken to answer the following questions:

1. How does the professional learning community deliberate to improve student learning?
2. What is the impact of deliberation on PLC planning conversations?
3. How do teachers perceive the relationship between their deliberation in a PLC and their instructional decisions?

By answering these questions, administrators and policy makers can become better equipped to determine whether PLCs are a powerful solution to the dilemma of influencing teacher learning and instructional decision-making. Moreover, the findings from this study may offer the information they need to better support PLC initiatives in their districts as means for ongoing, job-embedded professional development.

CHAPTER II—LITERATURE REVIEW

Traditional Staff Development

A body of international evidence suggests that educational reform depends on teachers' individual and collective capacity to promote student learning (Stoll et al., 2006). Therefore, if student achievement is to be increased, as policy makers desire, it is imperative that teachers: (a) grow in their own professional knowledge of pedagogy, and (b) use that knowledge to impact student achievement. Traditional professional development designed to increase teacher learning has been thought of in terms of workshops carried out in half day or full day in-service programs (Corcoran, 1995). These workshops may or may not have been relevant to teachers' professional needs. These programs may have featured experts who speak on a "hot topic" with teachers spending a few hours listening and, at best, leaving with some practical tips (Corcoran, 1995). Seldom did any follow-up to the experience occur, and subsequent in-services were often on entirely different topics (Corcoran, 1995). Many educators have heeded calls for a rejection of these traditional methods of professional development and embraced new images of meaningful professional learning (Wilson & Berne, 1999).

Characteristics of Effective Staff Development

Little's study (as cited by Wilson & Berne, 1999), suggested the following features are necessary for effective staff development: (a) collaboration, (b) collective participation of teachers in training and implementation, (c) focus on serious issues in curriculum and instruction, (d) enough time to accomplish tasks, and (e) contributes to norms of collegiality and exploration of ideas. Abdal-Haqq (as cited by Wilson & Berne, 1999) offered the following list of characteristics that need to be present in effective professional development:

1. is ongoing
2. includes training, practice and feedback, opportunities for individual reflection and group inquiry into practice, and coaching or other follow-up procedures
3. is school based and embedded in teacher work
4. is collaborative, providing opportunities for teachers to interact with peers
5. focuses on student learning, which guides assessment of its effectiveness
6. encourages school-based and teacher initiatives
7. is rooted in the knowledge base for teaching
8. incorporates constructivist approaches to teaching and learning
9. recognizes teachers as professionals and adult learners
10. provides adequate time and follow-up support
11. is accessible and inclusive

In contrast to the traditional approach, Ball (as cited by Wilson & Berne, 1999, p. 175) stated that "the most effective professional development model is thought to involve follow-up activities, usually in the form of long-term support, coaching in teachers' classrooms, or ongoing interactions with colleagues".

Professional Learning Communities

Professional learning communities are a relatively new approach to professional development, one that embodies many of the aforementioned characteristics. These PLCs appear to hold considerable promise for increasing both teacher and student learning (Bolam et al., 2005; Corcoran, 1995; Stoll et al., 2006; Vescio et al., 2007). The concept of a PLC originated in the business sector and was based on a premise regarding the capacity of an organization to learn (Vescio et al.). The concept of a learning *organization* was modified to fit the needs of

education and became that of a learning *community* striving to develop collaborative work cultures for teachers (Vescio et al, 2007.). Schools implementing this reform will shift their organization and structure for professional development toward integrated teacher learning in communities of practice with the goal of meeting the educational needs of students through collaborative examination of day-to-day teaching practices (Vescio et al., 2007).

No universal definition of a PLC exists; however, international consensus suggests that it is a group of people sharing and critically analyzing their practice in an ongoing, reflective collaborative, inclusive, learning-oriented, growth-promoting way (Stoll et al., 2006). PLCs are grounded on two assumptions: (a) that knowledge is situated in the day-to-day, lived experiences of teachers and best understood through critical reflection with others who share the same experience; and (b) that actively engaging teachers in PLCs will increase their professional knowledge and enhance student learning (Vescio et al., 2007).

Resnick and Hall (as cited in Supovitz, 2002) contended that, for schools to provide a more challenging and complex education to students, they would have to become learning organizations that employ such strategies as interactive classroom coaching, common meeting times, peer observations, and frequent collegial conversations about student work. Additionally, learning communities could not simply be organizational or structural reforms, but must be ones that promote and support changes in how teachers teach in order to meet the challenges inherent in increasingly rigorous standards (Supovitz, 2002).

Professional Learning Communities and Student Learning

Indications of connection between PLCs and enhanced student outcomes exist in the literature. Several national studies on what distinguishes high-performing, high-poverty schools from their lower performing counterparts consistently identified effective school-wide,

collaborative professional learning as critical to the schools' successes (Darling-Hammond et al., 2009). A "learning-enriched" teachers' workplace appears to be linked to better student academic progress (Stoll et al., 2006, p. 227). Bolam et al. (2005) found that the greater the extent of reported staff involvement in professional and student learning, the higher the level of student performance and progress in both primary and secondary schools. Supovitz (2002) provided evidence to suggest that those communities that engaged in structured, sustained and supported instructional discussions and that investigated the relationships among instructional practices and student work produced significant gains in student learning.

Research also supports the claim that students achieve at higher levels in schools with positive professional communities (Louis & Marks, 1998; Rosenholtz, 1989). Louis (1994) found that where teachers developed a PLC, the community not only enhanced the knowledge base of the group, but also had a significant impact on their classrooms work. This finding was due, in part, to the fact that teachers focused on "authentic pedagogy"—higher quality thinking, substantive conversations, deep knowledge and connecting with the world beyond the classroom (Stoll et al., 2006, p. 230). Lee and Smith (1996) reported that achievement gains in math, reading, science, and social studies among eighth and tenth grade students were significantly higher in schools where teachers took collective responsibility for students' academic success or failure. Effects of PLCs on student achievement have been noted to be particularly strong in disadvantaged areas (Stoll et al., 2006). However, measurable improvement in student achievement only occurred in relation to PLCs that focused on changing the instructional practices of participating teachers (Vescio et al., 2007). In communities where teachers worked together but did not engage in structured work that was highly focused around student learning, similar gains were not evident; results of student achievement gains varied with the strength of

the PLC in the school or with the specific focus of the efforts of teams or small communities of teachers (Bolam et al., 2005).

Issues with Professional Learning Communities

Many advantages to organizing teachers into groups have been cited in the literature. Chief among them are increased opportunities for adult interactions and the potential to build a culture of continuous learning that can produce communities of instructional practice. However, the mere act of grouping teachers, in and of itself, is unlikely to produce the powerful interactions around instruction that districts seek; simply calling a group a PLC does not mean that one actually exists (Supovitz, 2002). DuFour lamented the fact that all combinations of individuals with any interest in schools are now calling themselves PLCs (cited byVescio et al., 2007). The communities that develop often are not communities engaged in instructional improvement. For example, in a study set in the Cincinnati school system, teams reported spending about 25% of their time on administrative work, 30% on student discipline, 20% on paperwork from school and district, and the remaining 25% of their time on teaching and learning issues (Supovitz,2002). One important reason why these teams generally did not develop communities around instruction was that few teams had access to opportunities and experiences that would model for them how to engage in the disciplines of investigation necessary to develop and sustain communities of instructional practice (Supovitz,2002). Supovitz concluded that for teacher communities to focus on instructional improvement, they need organizational structures, cultures of instructional exploration, and ongoing professional learning opportunities along with time and resources to support sustained inquiries into improving teaching and learning.

The Cincinnati schools PLC study also points to the limitations of policy making to bring about deep changes in the instructional practice of teachers. The evidence suggested that the district's efforts provided just a bare foundation for communities of instructional practice to develop and only weakly influenced the instructional cultures, content knowledge and pedagogical strategies of most teachers—the things that seems most likely to produce improved outcomes for children (Supovitz, 2002). Although organizational changes are the most natural and visible structures for policy makers to modify, changing the behaviors that occur within PLC frameworks can be far more difficult (Supovitz,2002). Although administrators encouraged teachers to change their practices, for the most part, they were unable to do so in any deep and meaningful way (Supovitz, 2002). Supovitz concluded such groups need to develop a culture of instructional practice that encourages identification, exploration, and assessments of pedagogy that support student success.

Characteristics of Effective Professional Learning Communities

Research on PLCs can be summarized into eight characteristics that need to be present in order for a community to be effective in advancing teacher and student learning (Bolam et al., 2005; Stoll et al., 2006). It should be noted that many people who are researching and writing about the characteristics of PLCs assume that if these characteristics are present, the communities are "effective" by virtue of being closer to "exemplary PLC practices" (Bolam et al., 2005, p 8).

The first characteristic is *shared values and vision*, that is, the team members need to have a shared vision and sense of purpose with an "undeviating focus" on all students' learning (Bolam et al., 2005, p. 8). Wilson and Berne (1999) showed that this finding was supported in

Abdal-Haqq's research, which stated that effective professional development focuses on student learning.

The second characteristic is *collective responsibility*. Members of an effective PLC consistently take joint responsibility for their students' learning. Teachers meet regularly in learning teams organized by grade-level or content area assignments, and the members share responsibility for their students' success (Stoll et al, 2006). The underlying assumption is that such collective responsibility helps to sustain commitment, puts peer pressure and accountability on those who do not do their fair share and eases isolation (Stoll et al., 2006). This characteristic was shown to be part of effective staff development in Little's research (as cited by Wilson and Berne, 1999), which called for collective participation of teachers in training and implementation.

The third characteristic of an effective PLC is *mutual trust* among group members. Teachers are unlikely to participate in classroom observation and feedback, mentoring partnerships, discussion about pedagogical issues and curriculum innovation unless they feel safe (Bolam et al., 2005). Trust instrumentally affects students' learning because teachers' vulnerability is reduced and they are more willing to engage in public problem solving. Smylie and Hart (1999) cautioned, however, that when trust provides a context for predictability, stability, and safety, the response may not necessarily be reflective conversation and professional learning. This sense of trust might inhibit innovative activity by keeping individuals satisfied with their current situation.

The fourth characteristic is *collaborati*on. Feelings of interdependence (e.g., "we are all in this together," "we need each other") are central to such collaboration. Collaboration is also linked to the shared purpose of the group and, as a result, conflicts tend to be managed more

proficiently in higher functioning PLCs (Bolam et al., 2005). Learning within PLCs involves active deconstruction of knowledge through reflection and analysis and its co-construction through collaborative learning with peers (Bolam et al., 2005). Groups collectively develop new ideas and ways to address student needs. They set goals for themselves, monitor their performance and reflect on their practice (Lipton & Wellman, 2011). Community members sometimes teach together, often observe each other in the act of teaching and always feel safe in doing so (Supovitz, 2002). Based on these common experiences, teachers may offer constructive criticism of each other's strategies (Supovitz, 2002). Communities flexibly and purposefully regroup their students to take advantage of both the strengths of team members and the advantages of small student groups for particular instructional purposes (Supovitz, 2002). Abdal-Haqq asserted that collaboration is an important feature of effective staff development, as did Ball who called for ongoing interactions with colleagues (cited by Wilson & Berne, 1999).

The fifth characteristic is that *group as well as individual learning is promoted*. In communities of instructional practice, the theory goes, educators will not only maximize their collective knowledge and skills but also facilitate their learning of new knowledge and skills because adult learning is as much, if not more, of a group activity as it is an individual act (Supovitz, 2002). All teachers become learners alongside their colleagues. Teachers continually analyze data from each child to identify ways to affect student success (Vescio et al., 2007). In fact, a key element of successful PLCs is their pervasive attention to meeting the learning needs of students (Vescio et al., 2007). Supovitz (2002) concluded that giving teachers the power to be decision makers in their own learning process was essential to improving students' learning.

Bolam et al. (2005) indicated teachers saw a clear connection between their own professional learning opportunities within their PLC and changes in their practices and student

learning. Teachers treat their own classrooms as sites for investigation. PLCs honor the knowledge and experience of teachers (Vescio et al., 2007). Little (as cited by Wilson & Berne, 1999) offered that effective staff development includes an exploration of ideas. This concept is consistent with Abdal-Haqq's research, which demonstrated that staff development should recognize teachers as professionals and adult learners (as cited by Wilson & Berne, 1999).

The sixth characteristic involves *reflective professional inquiry*. The members have serious conversations about educational issues. Instructional practice is de-privatized (Bolam et al., 2005). Learning teams follow a cycle of continuous improvement that begins with examining student data to determine the areas of greatest student need, pinpointing areas where additional educator learning is necessary, identifying and creating learning experiences to address these adult needs, developing powerful lessons and assessments, applying new strategies in the classroom, refining new learning into more powerful lessons and assessments, reflecting on the impact on student learning, and repeating the cycle with new goals (Darling-Hammond et al., 2009). Several extant models could be used to assist teachers in facilitating this continuous cycle of improvement, such as the Data Teams experience (McNulty & Besser, 2011), the Lesson Study approach (Lewis, 2009) or the Pearson Learning Teams Protocol (Abbott, Claire, & McKnight, 2010). These three models contain similar elements, beginning with having teachers analyze student data to determine the learning need. Each then calls for teachers to formulate a clear objective and identify an instructional focus. Next, participants are prompted to outline the instructional method or approach they will use in order to achieve the stated goal. They collaboratively plan a lesson that will address the student need. After implementing the lesson, they analyze student work to evaluate the objective and the instruction, and to refine the identified student need. Depending on the results, the cycle is repeated with the same goal, or

teachers move on to another student learning need and follow the same steps. In short, these models provide for collaborative, structured, scheduled meetings that focus on the effectiveness of teaching and learning to advance the purposes of a PLC—improved student learning and enhanced teacher learning.

Teachers involved in PLCs that used data to improve teaching provided evidence that they gained confidence in their own professional judgment and became more knowledgeable and informed in their discussion of classroom practices due to the greater use of data and the systematic collection of evidence (Vescio et al., 2007). This characteristic is evident in Little's research on effective staff development, which focuses on serious issues in curriculum and instruction (as cited by Wilson & Berne, 1999). An emphasis on data is also present in Abdal-Haqq's research, calling for opportunities for individual reflection and adult learning through training, practice and feedback (as cited by Wilson & Berne, 1999).

The seventh characteristic that is essential to effective PLCs is *inclusive membership* and involves the community extending beyond smaller groups teachers and school leaders to support staff, making the PLC a school-wide community learning experience (Bolam et al., 2005). Hargreaves (2003) noted that a strong PLC brings together the knowledge, skills and dispositions of teachers in a school or across schools to promote shared learning and improvement. This feature is affirmed by Abdal-Haqq's research that found staff development should be accessible and inclusive (as cited by Wilson & Berne, 1999).

Finally, *openness, networks and partnerships*—looking beyond the school for sources of learning and ideas—are part of an effective PLC. To promote, sustain and extend PLCs, schools appear to need external support, networking and other partnerships (Bolam et al., 2005). Watson and Fullan (1992) concluded that strong partnerships are not accidental; neither do they arise

through goodwill nor ad hoc projects. They require new structures, activities and a rethinking of the way each institution operates as well as how they might work as part of this partnership. When educators seek external perspectives from other stakeholders, it constitutes a vital and integral part of their efforts to explore all aspects of practice (Vescio et al., 2007).

Stoll et al. (2006) and Bolam et al. (2005) found that effective PLCs develop these characteristics and were enabled to maintain a strong focus on student and teacher learning. Supovitz (2002) demonstrated that if teachers did not have opportunities and training that modeled for them how to operationalize these characteristics, then their PLC was highly unlikely to engage in a cycle of continuing improvement and, therefore, did not evolve into an effective PLC.

Role of the Deliberative Theory

The PLC characteristics of *collaboration, group and individual learning, reflective professional inquiry, inclusive membership* and *openness, networks and partnerships* are reflected in deliberative processes. Thus, the deliberative democratic theory serves as a lens through which the interactions of the PLC participants can be analyzed. Stromer-Galley (2007) defined deliberation as a process whereby groups of people, often, ordinary citizens, engage in reasoned opinion expression on a social or political issue in an attempt to identify solutions to a common problem and to evaluate those solutions. Habermas, a leading deliberative theorist, understood this type of communication to be an " interactive process in which actors collectively reason through validity claims with all other affected actors in order to arrive at those claims that are universally valid" (Schneiderhan & Khan, 2008, p.3). Dryzek suggested that deliberation is communication that induces reflection upon preferences in a non-coercive fashion (as cited by Dutwin, 2002). Ultimately, deliberative theorists assert that deliberation affects outcomes.

Deliberation is characterized by reason giving and inclusion. Deliberation involves weighing and examining the reasons for and against a measure and giving careful consideration and mature reflection to choices. Deliberation often involves considered action by a group of persons (Harris, 1986). However, reasons are more than just opinions; they offer a justification for a stated position related to the topic under consideration, which increases the information acquired by the group members and affects individual decision-making. Therefore, as reasons and inclusion increase, so does the likelihood of participants changing their positions (Schneiderhan & Khan, 2008). Discussion that is not motivated by reason giving and inclusiveness is unlikely to produce different results than just allowing members to consider the matter on their own (Schneiderhan & Khan, 2008). Such discourse can "help us realize just or legitimate ends, and the process is not one that occurs within subjects but rather is realized through interactions between subjects" (Schneiderhan & Khan, 2008, p. 3). Before political talk, individuals only have half-formed and vague opinions. Political contact brings enlargement, and individuals are broadened by this contact with others (Dutwin, 2002).

Deliberation differs from a discussion in that a deliberation includes a focused exchange of ideas and the analysis of multiple views with the aim of making a personal decision and finding areas of agreement within a group. Deliberating is not just giving a personal opinion but also listening to other people's opinions and trying to find some common ground on a given topic. In a discussion participants share their point of views with others and participants learn more information about the subject. Discussion is a dialogue between people that can be used for many purposes and, at a minimum, involves the exchange of information about a topic (Hess, 2004).

Stromer-Galley (2007) stated that six elements appear to be essential for political deliberation: reasoned opinion expression, references to external sources when articulating opinions, expressions of disagreement and hence exposure to diverse perspectives, equal levels of participation during the deliberation, coherence with regard to the structure and topic of deliberation, and engagement among participants with each other. Schneiderhan and Khan, (2008) operationalized these elements through clearly stated procedural guidelines and the limited input of an administrator. The guidelines are grounded in six principles:

1. Participants listen to one another.
2. Participants do not just offer opinions, but rather provide reasons.
3. Conflict is okay.
4. Participants should find reasons they can accept.
5. Participants should be open to new proposals.
6. All participants should be included in the process.

Furthermore, contemporary deliberative theorists require that individuals actually articulate their views in face-to-face public forums, listen to reactions, justify their positions and modify their own views (Kosnoski, 2005). Deliberative processes extend over an indeterminate period of time and "manifest a rhythm of challenges and responses, revelations and acknowledgments, appeals and acceptances" (Kosnoski, 2005, p. 658). According to the communal/conversational framework, deliberation is only obliquely argumentative and a public policy focus only arises through talk of the community (Dutwin, 2002). However, as individuals begin to evaluate arguments, their general perspectives grow which allows them to place themselves in the perspectives of others. They become more likely to sympathize with their fellow deliberators and use this mentality when constructing solutions (Kosnoski, 2005).

In the educational setting, as Lasch (1995) pointed out, this type of conversation enables teachers to solidify their perspectives on pedagogy and develop more sophisticated viewpoints on the topics discussed. Reid (as cited by Harris, 1986) offered that a review of curriculum problems suggests that they pose questions that have to be answered; existing resources, expertise and expectations have to be taken into account; a problem exists about conflicting aims and how to adjudicate between them. Dillon (2009, p. 349) found that questions of action regarding curriculum work are what are called deliberative questions because they ask "what should we do?" Taylor (as cited by Dillon, 2009, p. 349) offered an "instructive and authoritative example" by further defining three questions in curriculum work:

1. What should be/is taught?
2. What should/does that result in?
3. What is believed necessary/put in to produce that result?

In "what kind of language (these questions are answered), by reference to what beliefs and assumptions, in terms of what justifications" (Dillon, 2009, p. 349) are the questions that should be discussed when thinking about curriculum and how practitioners go about their daily work. The deliberative questions that Dillon and Taylor set forth are closely tied to those that Dufour (2004) identified as important for teacher collaboration: (a) what do we want students to learn?, (b) how will we know they have learned it?, (c) how will we respond when a student experiences difficulty in learning?, and (d) what will we do for those students who already know it? Because the deliberative curriculum questions posed by Dillon and Taylor and the collaborative questions suggested by Dufour require essentially the same focus and thinking on the part of teachers, applying deliberation theory to a study of PLCs can be useful in better understanding the work in which the communities engage.

Furthermore, a strong connection is evident between deliberation theory and research on learning communities in that elements of deliberation are found in the characteristics of effective PLCs. For example, collaboration and reflective professional inquiry require participants to listen to one another, work through disagreements, reflect on the action questions related to curriculum, and find solutions. Group and individual learning occurs when members consider different perspectives and have to offer reasons to justify their own perspectives. Additionally, in order to provide reasons for their opinions, teachers have to listen to those in the group (inclusiveness) and extend their thinking beyond the horizon of the group (openness, networks and partnerships). Therefore, deliberation theory provides a relevant framework through which the work of PLCs can be analyzed.

Organization and Implementation of PLCs

Three important considerations about how PLCs are organized and implemented are the role of a group facilitator, building and district leadership in development, and the stages through which that development progresses. Research concerning these considerations follows.

PLC group facilitator. A PLC group facilitator's job is to create the conditions for the characteristics described above (Stoll et al., 2006). Lipton and Wellman (2011) stressed the importance of a facilitator who can help teachers maintain a focus on the group's goal through various challenges that may arise. They set forth the following attributes of an effective group leader:

1. always focuses on data about student learning and directed toward increasing that learning
2. pays attention to the tensions that arise in groups and works to diminish them
3. provides outcome clarity for tasks, for relationships and for processes

4. holds clear standards for performance and continually monitors progress towards those ideas
5. monitors and adjusts the tone and affect of their responses and inquiries to group members to support and invite thinking
6. has knowledge of developmentally appropriate skill goals for individual group members, ways to monitor skill development, and systems to document growth and progress
7. uses visuals for sharing ideas and directions, and especially for communicating about difficult topics or hard to talk about information
8. uses pronouns with purpose—our work, your work, the work—because inappropriate pronoun choice can alienate group members by implying that they are in some way working for the leader and not for some greater purpose.

These attributes are related to the characteristics set forth previously for effective PLCs. For example, if a facilitator is focused on student learning, they are helping to develop shared values and visions within a group by creating an "undeviating focus" on all students' learning (Bolam et al., 2005, p. 8). Additionally, they are promoting group learning in which teachers continually analyze data from each child to identify ways to affect his or her success (Vescio et al., 2007). By paying attention to tensions that arise in the group and working to diminish them, the facilitator is not only helping to create mutual trust as teachers are unlikely to participate in classroom observations and feedback, mentoring partnerships, discussions about pedagogical issues or curriculum innovations unless they feel safe; but the facilitator also facilitates collaboration by managing conflicts as they arise (Bolam et al., 2005).

According to Lipton and Wellman (2011) a facilitator provides outcome clarity for tasks, relationships, and processes. This attribute was closely associated with the PLC characteristic of collaboration, wherein the group collectively develops new ideas and ways to address student needs and sets goals for themselves, monitors their performance, and reflects on their practice (Lipton & Wellman, 2011). This attribute was also related to the characteristic of reflective professional inquiry, in which learning teams follow a cycle of continuous improvement. In order to accomplish this characteristic, the facilitator must take a "strategic and comprehensive view of the problem-solving and decision-making processes and selects the specific methods that match the group's needs and the tasks at hand" (Schuman, 1996, p. 3).

Lipton and Wellman (2011) suggested that an effective facilitator also holds clear standards for performance and continually monitors progress towards those ideas. This trait is connected to the PLC characteristic of reflective professional inquiry wherein teachers examine student data to determine the areas of greatest student need, pinpoint areas where additional educator learning is necessary, identify and create learning experiences to address these adult needs, develop powerful lessons and assessments, apply new strategies in the classroom, refine new learning into more powerful lessons and assessments, reflect on the impact on student learning, and repeat the cycle with new goals (Darling-Hammond et al., 2009).

Another quality of an effective facilitator offered by Lipton and Wellman (2011) is the ability to monitor and adjust the tone and affect of their responses to group members to support and invite thinking. This aspect is related to reflective professional inquiry wherein the groups have serious conversations about educational issues. Facilitators must be aware of their twofold task; they must be able to outline procedures that will help the group think about the problem and, at the same time, help the group interact effectively (Schuman, 1996). Lipton and Wellman

(2011) suggested that facilitators should have knowledge of developmentally appropriate skill goals for individual group members, ways to monitor skill development, and systems to document growth and progress. When they establish these procedures, they are also helping to develop group as well as individual learning, an important characteristic of effective PLCs.

Finally, using visuals for sharing ideas and directions and for communicating about difficult topics and using pronouns with purpose demonstrates strong procedural communications skills. Good facilitators are aware that they are intervening in basic functions that individuals value, such as communicating with one another, processing and making sense of information, and reaching decisions (Schuman, 1996). A good facilitator is a procedural expert and supports the group's social and cognitive processes, freeing the group members to focus their attention on substantive issues (Schuman, 1996). He or she helps the group understand the techniques being used and enables the group to improve its own problem-solving processes because in order for group members to buy into the results, they also have to buy into the rules and procedures of the process (Schuman, 1996).

In their research on deliberation, Schneiderhan and Khan (2008) found that deliberative conversations were not as successful without the gentle nudging and reminders from a facilitator to be inclusive and offer more than just opinions. The social skills of a moderator are useful in keeping the flow of conversation going and encouraging an atmosphere of mutual respect (Kosnoski, 2005).

As multiple studies suggest, a group leader plays a significant role in substantive matters that PLCs engage in such as maintaining high standards and a focus on learning for the group, resolving conflicts, and establishing procedures under which to operate. Considering the importance of this position within a PLC, facilitators need to be trained in the strategies outlined

above, and when they employ said strategies not only will they be effective leaders the group will be more effective in the way it operates (Lipton & Wellman, 2011).

Building and district leadership in PLC development. Supovitz and Christman (2005) discovered that district and building leadership plays a role in developing effective learning communities as well. District and building leaders need a firm knowledge base about how effective instructional communities work (Supovitz & Christman, 2005). These leaders must then provide the communities with the necessary structures, strategies, and support to help teachers hone their instructional craft. Leaders need to provide blocks of protected time during which collaborating teachers can discuss student performance standards and consider how their instruction produces learning (Supovitz & Christman, 2005). Administrators must allow communities as much autonomy as possible in their decisions about curriculum, staffing, scheduling and budgets, which enhances community identity and distinctiveness as they decide what matters to their community and their shared students (Supovitz & Christman, 2005). Opportunities for professional exchange appear to be further facilitated by physical proximity (e.g., teachers in a department having neighboring classrooms).

Improvement is generally more challenging and complex in secondary schools due to a greater diversity of purposes, objectives, and department structures (Bolam et al., 2005; Stoll et al., 2006). Several studies showed that secondary school structures sometimes result in teachers having a stronger sense of belonging to a departmental community than a whole school community (Stoll et al., 2006). The organization of a learning community must also include both horizontal relationships that allow collaboration with peers at the same grade level and vertical relationships that promote articulation across grade levels and sustained relationships with students (Stoll et al., 2006). The role of leadership is supported in Abdal-Haqq's research (as

cited by Wilson & Berne, 1999), which showed that effective staff development should provide adequate time and follow-up support, encourage school-based and teacher initiatives, and be embedded in a teacher's work.

Stages of PLC development. It is important to note that administrators can only create conditions fostering commitment to the collective good; they cannot ensure it will happen. Bolam et al.'s (2005) study of PLCs determined that none of the characteristics mentioned above were immediately present in a group. A group will pass through stages of development that lie on a continuum from early starter to developer to mature; as groups move through these stages, a PLC demonstrates increasing effectiveness (Bolam et al., 2005). Their research suggested a relatively low expression of the characteristics of effective PLCs at the early starter stage, considerably higher at the developer stage, and highest at the mature stage. The transition between stages might, however, proceed in either direction with the possibility a regression or decline in PLC effectiveness. They found more developed a PLC appeared to be, the more positive was the association with student achievement and teachers' professional learning (Bolam et al., 2005).

Concluding Thoughts

As previously stated, PLCs vary in their effectiveness. Understanding the outcomes of these endeavors on teaching practice and student learning is crucial, particularly in today's era of accountability (Vescio et al., 2007). Effectiveness should be judged on the PLC impact on student learning and social development, impact on teachers' professional learning, performance and morale, and the operational performance as a PLC (Bolam et al., 2005). Staff in schools wishing to promote and sustain an effective PLC should monitor and evaluate the development

of these characteristics as well as implementation of the deliberative process over time, then take appropriate follow-up action to maximize their effectiveness.

CHAPTER III—METHODOLOGY

The purpose of this study was to understand the role deliberation plays in the planning conversations of professional learning communities (PLCs), the impact of deliberation on the instructional decisions of the participating teachers, and their perceptions of the relationship between their PLC conversations and instructional decisions. As a means of facilitating this research, a case study method was utilized. This approach was chosen because the researcher wanted to understand a real-world case and assumed that such an understanding was likely to involve important contextual conditions relevant to the case (Yin, 2014). A case study allows an investigator to retain the holistic and meaningful characteristics of a real-life phenomenon (Yin, 2014).

Case Study Design

The researcher must decide between a single- and multiple-case design. Yin (2014) argued that the multiple-case design offers the researcher the ability to present stronger evidence and draw stronger conclusions by comparing multiple cases with similarities and differences. With both single- and multiple-case designs, however, embedded units of analysis are possible (Yin, 2014). A single-case design with embedded, or multiple, units of analysis provides the best option for this study. Multiple units, that is, PLCs within a school district, make it possible for the researcher to observe different units at work. The comparison of different school-level implementation efforts extend and strengthen conclusions drawn about the impact of deliberation and the effectiveness of PLCs in this district. Additionally, the single-case design with a PLC as the unit of analysis provides a manageable task for a solo researcher without external support.

Theoretical Propositions

Another step in establishing a case study design involves deciding whether or not to use theoretical propositions to guide and refine the design, including selection of the case(s) and unit of analysis, development of research questions, and specification of relevant data to be collected (Yin, 2014). Yin warned that theoretical propositions need to suggest a set of simple relationships; they can be plain and uncomplicated (Yin, 2014). A primary and a secondary theoretical proposition are utilized in this study.

Deliberative theory. The primary theory utilized in this study is the deliberative democratic theory. This theory is premised on reason giving (i.e., providing justification for a certain position) and inclusion (i.e., hearing all participants). Reasons are more than just opinions; they offer a justification for a stated position related to the topic under consideration, which increases the information acquired by the group members and affects individual decision-making. Therefore, the theory holds that as reasons and inclusion increase, so does the likelihood of actors changing their positions (Schneiderhan & Khan, 2008). Such a change in position is then expected to lead to greater consensus. In this study, the consensus would reflect the best instructional path to select for improved student learning. Moreover, the negotiated agreement among the teachers and the administration in the school district under study stated that collaboration time was designated for teachers to interact with other teachers, administrators, and support staff in a professional relationship to improve student performance.

Therefore, considering that a stated purpose for PLCs in the participating district is to interact in regard to professional issues involving student performance, it follows that teachers would be engaging in deliberation involving areas such as curriculum planning, assessments, and analysis of student achievement data. Applying the deliberation theory in the present study

helped to reveal whether or not the PLCs were truly deliberating in a purposeful and action-oriented manner that allows them to accomplish their stated mission.

PLC characteristics imply efficacy. The secondary theory applied in this study is the proposition that if a group is displaying the characteristics of effective PLCs as identified in the research, the group is considered effective. If, indeed, groups are effective, they should be positively affecting student achievement as evidenced by planning together and changing their instructional practice in response to their students' learning needs (Stoll et al., 2006). Therefore, the goal of the PLC is to take the work that is accomplished within a PLC and translate it into changed instructional practice, which results in changes in student learning.

Prior to researching the possibility of such a causal connection between what occurs in the classroom and what happens in PLC, the researcher wanted to explore whether or not teachers realized that relationships exist among their classroom practice and their PLC work. This study attempts to explores that overarching question.

Data Site

This study used a single-case design with multiple embedded units of analysis—the district PLC program, the case, and three of the PLCs within the district, which are the units of analysis. The data site was a pre-K-12 school district in a mid-sized town in Kansas. According to the most recent demographic data available from the Kansas State Department of Education, the entire district enrolled 6,319 students during 2012-2013 school year, with 61% of the students classified as non-economically disadvantaged and 39% as economically disadvantaged (Report Card 2012-13). The State-reported distribution of students by racial/ethnic categories were: 67.25% White, 11.79% Hispanic, 8.18% African-American, and 12.77% Other. Forty-eight percent of students were male and 52% were female.

Although the researcher's original intent was to observe two PLCs in the same building, sampling constraints led to the analysis of three PLCs in three different schools within the district. The selected schools were an elementary school, a middle school, and a high school. These sites were chosen based on the administration and team members' willingness to take part in the study as well as the reported conversational focus on instruction of their respective PLCs. The researcher realized after acquiring these sites for study that it would, indeed, be valuable to observe these PLCs in different buildings in order to better understand the types of deliberations occurring at each level of schooling.

The K-6 elementary school had a total enrollment of 564 in 2012-2013 with 36% of the students classified non-economically disadvantaged and 64% as economically disadvantaged. Distribution of student racial/ethnic was reported as: 57.98% White, 14.54% Hispanic, 9.22% African-American, and 18.26% Other. Fifty-three percent of students were male and 47% were female.

The middle school was only 7th and 8th grades and had an enrollment of 438 in 2012-13. The state reported that 55.02% were reported to be economically disadvantaged while 44.98% were identified as non-economically disadvantaged. Student racial/ethnic distribution was reported as: 62.33% White, 15.07% Hispanic, 12.56% African-American, and 10.05% Other. In this building, 48% of the students were male and 52% were female.

The high school was comprised of 9th through 12th grade and had an enrollment of 1,921 in 2012-2013. Here 71.37% of students were reported to be non-economically disadvantaged and 28.63% as economically disadvantaged. Student racial/ethnic distribution was reported as: 71.16% White, 10.52% Hispanic, 7.44% African-American, and 10.88% Other. Forty-nine percent of the students were male and 51% were female.

Sample

The units of analysis consisted of PLCs in the three schools referenced above and were selected based on the researcher's interviews with district and building administrators. The administrators were asked the following questions to determine which PLCs to invite to participate in the study:

1. Which PLC teams are involved in data analysis?
2. Which PLC teams are currently engaged in conversations regarding instruction and student learning?

The answers to these questions were compiled and, based on a consensus in the responses, the researcher made the decisions as to which teams to invite to participate. In this way, the cases should reflect the characteristics identified in the conceptual framework. If no consensus existed, the researcher made a decision based on the information provided by the building administrator as to which team to approach. The researcher made appointments during school hours to visit with the identified teams to explain the study and ask permission to observe their PLC meetings and collect data.

Originally the two-study design called for two PLCs located at one middle school. However, during the selection process, one of the invited teams expressed that it would be engaging in work different from what was to be observed for the upcoming semester, and mutually agreed with the researcher that it was not a good choice for the study. Because no other teams at the middle school were initially identified as having relevant conversations about instruction and student learning, the researcher was forced to look for PLCs in other schools in the district. A team at the high school agreed to participate, and another team at an elementary school was suggested. At this point, the researcher determined that having a team at each grade

level could provide insight into what deliberation looks like at different grade levels. Therefore, the sampling plan was revised to include an elementary school, a middle school, and a high school PLC in the study.

The elementary school PLC consisted of three teachers, all of whom taught at the sixth grade level. Two teachers were female and one was male; all were White. The middle school PLC consisted of four teachers, all of whom taught science. Two teachers instructed at the 7th grade level and two at the 8th grade level. Two teachers were female and two were male; three were White and one was Hispanic. The high school PLC consisted of three teachers, all of whom taught geometry, were female, and were White.

The three embedded units—elementary school, middle school and high school—served to focus the study, but also allowed for the exploration of nuances in implementation within different PLCs. These three units of analysis provided for cross-case comparison and a greater understanding of the conceptual framework. While this study will not claim replication, as it is limited to a single case, findings are strengthened through the inclusion of embedded units.

Limitations

Although this study can compare each unit, such findings probably say very little about the PLCs in the respective buildings. The results are hard to generalize to other PLCs as the researcher cannot be certain that other PLCs deliberate in the same way, if they do at all. Additionally, the deliberation schema used for coding the conversations was designed for political settings, which is where most deliberation research occurs. This study attempted to apply the schema to an educational setting in which different codes of conduct exist for professional behavior. The schema may not have captured the nuances that existed in deliberation within this alternative setting.

Informed Consent

Before beginning the study, the researcher obtained permission to conduct research within the district. Participation was voluntary, and all participants signed informed consent forms with a statement approved by the University of Kansas Human Subjects Committee. The participants had the opportunity to read this informed consent statement and raise questions or concerns regarding the purpose or nature of the study before indicating their consent to participate in the research by signing the form. To protect anonymity no participants or agencies are identified by name.

Data Collection

Two notions established in current research guided data collection. First, PLCs that deliberated in their planning sessions experienced richer opinion formation, inclusion of thought, and reflection on the choices presented. Second, and also important to this study, was the rival notion that PLCs that did not deliberate did not hear and give consideration to the opinions of their colleagues, and they did not expand their thinking on instruction as a result of their participation in the group. Data from the following five sources were collected over a five-month period from January 2014 to May 2014.

Transcripts of audio-recorded sessions. The researcher attended and audio recorded six PLC meetings each at the elementary and high school levels, and attended five sessions at the middle school, recording only two. Originally, the researcher intended to attend eight to 10 PLC sessions at each level, out of a total of 15 scheduled PLC sessions for the school year. Logistically, however, this level of involvement was not possible. At each level some sessions were cancelled due to teacher absence or school business such as assemblies and conference preparation, which prohibited the researcher from meeting the stated goal within the established

time frame. Given the number of cancelled sessions, the researcher observed about half of the total number of sessions held and believed those comprised a representative sample of what occurred.

Furthermore, the middle school PLC did not engage in the types of conversations that the administrator had suggested were occurring at the outset of this study. An outside presenter who shared an educational resource led three of the sessions that the researcher attended, and the two recorded sessions focused more on department business and resource sharing than student work and instructional practices. The researcher transcribed those two sessions in an attempt to determine the impact of deliberation and the results are presented in Chapter IV of this document. All of the attended sessions were held during the teachers' prescribed PLC time during school hours.

The researcher audio recorded the PLC sessions using a digital recording device. The recordings were immediately transferred to the researcher's password-protected computer, then transcribed and analyzed. The recordings on the digital device were erased.

Video-recorded classroom lessons. To understand the impact of the deliberations on their instructional decisions, the researcher observed the instructional strategies used in the group members' classrooms at the end of the study by video-taping one classroom lesson. A Flip Camera recorded the lessons, and the researcher immediately copied the videos onto the respective classroom teachers' password-protected computers. The researcher downloaded the video onto her own password-protected computer for review in preparation for the subsequent interviews. Each recording was erased from the Flip Camera.

Teacher reflection sheets. After video-taping the classroom lessons, the researcher asked each teacher to review the recording and complete a researcher-created reflection sheet

(see Appendix). The researcher drafted the reflection sheet questions, sought feedback from several professors, and made appropriate revisions to the questions based on the feedback received. She emailed the final reflection sheet to each teacher prior to his or her classroom observation, and each teacher returned to the completed sheet to the researcher via email. The responses on this document contributed to subsequent interview questions.

Transcripts from teacher interviews. The researcher conducted semi-structured interviews with all of the participating teachers at the end of this study, asking them to describe their perceptions of the impact that deliberation had on their PLC planning conversations, their professional growth, and on their students' learning. The interview questions were determined based on (a) the research questions for this study, (b) researcher observations in the PLC sessions, (c) researcher observations of a classroom lesson for each teacher, and (d) the teachers' reflection sheet responses. The researcher emailed these questions to the participants prior to the scheduled interviews (see Appendix).

The elementary interviews were held during their normally scheduled PLC time. Each interview lasted approximately 20 to 30 minutes. These interviews were held individually in the hallway due to the fact that the teachers' rooms were being used for other purposes at that time. Even though some hallway traffic took place, the activity did not interrupt the interview process. The middle school interviews were held in the individual teacher's classroom during his or her planning period. The high school interviews were also held in the individual teacher's classroom during her planning period.

The interviews were audio-recorded using a digital recording device and downloaded to the researcher's password-protected computer. The recordings were transcribed and then erased from the digital recorder.

Researcher notes. The researcher took hand-written notes during the observed PLC sessions. Informal notes were also taken by the researcher during the video-tapings of the classroom lessons.

The researcher created a case study database containing case study notes, transcripts, and classroom videos, which markedly increases the reliability of the case study (Yin 2014). Quality case study research does not intertwine evidence and interpretation (Yin, 2014). This error can be avoided with the use of a case study database that allows readers to judge the interpretation of the data based on the evidence presented (Yin, 2014).

Data collection from transcripts, researcher observations and video review/reflection sheets, was triangulated in order to establish converging lines of evidence, making the findings as robust as possible (Yin, 2014). The most desired convergences occur with three or more sources all pointing to the same set of events, facts, or interpretations (Yin, 2014). Utilizing interviews as well as direct observation and document analysis across three units of analysis provided ample information for triangulation purposes. Use of multiple sources of evidence allows for triangulation of the data and increases construct validity of the study.

Analytic Technique

The analytic technique employed in this study is the logic model. The use of logic models involves "matching empirically observed events to theoretically predicted events" (Yin, 2014, p. 155). A logic model sets forth and operationalizes a complex chain of occurrences or events over a period of time. Yin credited Joseph Wholey (1979) as being influential in developing the logic model method (Yin, 2014). Wholey promoted the idea of tracing events when an intervention was intended to produce a certain outcome or sequence of outcomes. "The intervention could initially produce activities with their own immediate outcomes; these

immediate outcomes could in turn produce some intermediate outcomes; and in turn, the intermediate outcomes were supposed to produce final or ultimate outcomes" (Yin, p. 156).

In the present study, the researcher wanted to learn what happened to the teachers' thinking as they deliberated in PLCs. These PLCs provided time for teachers to work with their peers on analysis of student data and, subsequently, instructional planning to meet the learning needs identified during the data analysis (i.e., the immediate outcomes). The analysis assumes the results of immediate outcomes are evidence of increased deliberation, collaboration and understanding among teachers (i.e., intermediate outcomes). This study sought to identify and describe what happens through the intermediate outcome phase. Eventually, the work accomplished in PLCs (i.e., changed instructional practices) is assumed to lead to the increased learning of key concepts by students (i.e., ultimate outcomes). The observations and interviews with teachers included in this study could be used in future research to determine if a direct relation exists among PLC deliberations, classroom action, and student achievement.

Yin (2014) pointed out that a logic model can include both qualitative and quantitative analysis. A qualitative analysis compares the consistency between the observed and the predicted events for each case—affirming, rejecting or modifying the original prediction. A researcher would then provide additional qualitative data explaining why the prediction had been affirmed, rejected or modified. A quantitative analysis would follow the same analytic strategy but be based on more cases. After having affirmed, rejected or modified the predicted outcome, the analysis would add new data, perhaps taking the form of different variables being added to the initial equation to explain why the sequence had been affirmed, rejected or modified (Yin).

Based on the conceptual framework presented above, the predicted outcome to be tested in this study was that an effective PLC engages in deliberation surrounding teacher planning and

instruction through collaborative conversations, which then affect teachers' instructional decisions. To determine what was effective, the researcher relied on the research presented thus far and focused on whether or not the PLC exhibited the following characteristics: (a) shared values and vision, (b) collective responsibility, (c) reflective professional inquiry, (d) collaboration, (e) group as well as individual learning, (f) mutual trust, (g) inclusive membership, (h) openness, networks and partnerships, and (i) to what extent the members engage in deliberation.

An important note in case study research is that the underlying assumptions implicit at the beginning stages of research may change as data are collected (Yin, 2014). These changes may result in revisions in the initial plan. This note is not an argument against starting with a strong plan, but a recognition that it is better to revise the initial plan, even drastically, than begin with no plan at all (Yin, 2014).

Coding

To be able to interpret the data from the audio- recorded conversations, it was divided into "units" of information related to specific aspects of the problem under study. Each unit is the smallest piece of information that could be understood by someone with a general knowledge of the topics under study. In order to accomplish this, the following adaptation of Stromer-Galley's (2007) approach to content analysis in deliberation was utilized with the recorded conversations. Each comment was segmented and coded according to the following framework (see Table 1):

Table 1 *Framework for coding*

Step number	Action
Step 1	Segmenting the talk into categories
Step 2	Identifying thoughts within the four talk categories
Step 3	Determining the thought valence
Step 4	Coding elaboration
Step 5	Coding the moderator's statements
Step 6	Calculating the speaker talk percentage

Step 1: Segmenting. Segmenting is the first stage of the coding process. Each turn (that is each unique speaker), must be broken into the categories exhibited in the turn. The four categories of talk are problem, metatalk, process, and social, as described below (see Table 2).

Table 2 *Type of talk and thought category*

Category of talk	Thought categories
Problem talk	Opinion
	Agreement
	Disagreement
	Fact
	Question
Metatalk	Consensus
	Conflict
	Clarify own
	Clarify others
Process talk	Technical problems
	Technical benefits
	Deliberation process
	Deliberation problems
	Deliberation positive
Social talk	Salutations
	Apologies
	Praise
	Chit chat

1. *Problem talk* is talk that focuses on the issue being considered. Opinions, agreements, disagreements, facts, and questions all deal with the problem under discussion.
2. *Metatalk* is talk about the talk. This form of talk attempts to step back and assess what has transpired or is transpiring in the interaction, either as a group, or between individuals or to clarify meaning—one's own or someone else's.
3. *Process talk* is talk about the technical and deliberation process. Process talk may include questions, agreement, disagreement, metatalk, or facts. Researchers must pay attention to whether the question is about the process or about the problem. If the question is about the process, then it is categorized as process talk.
4. *Social talk* is talk that brings the strangers together by building social bonds.

Step 2: Identifying thoughts within the four talk categories. Once the segmenting is done, then the category segments must be broken further into thoughts. The "thought" is the unit of analysis for which the deliberations are coded. Table 2 summarizes the types of thought for each category of talk; each thought type is then detailed below.

Problem talk. Problem talk was coded as one of five types of thought: opinion, agreement, disagreement, fact, or question. These thought categories were defined as follows.

- Opinion: Opinions are expressed judgments the speaker has made on a person, an event, a social problem, a state of affairs, a crisis, values, and the like.
- Agreement: Agreement is a signal of support with something a prior speaker said, including the moderator, with such statements as "I know," "I agree," "That's right,"

- Disagreement: Disagreement is a statement that signals opposition with something a prior speaker said, including the moderator, expressed in such ways as: "I sort of disagree," "I'm not sure about that" "That's not right."
- Fact: Fact is a statement that a condition has, does, or will exist. Facts stand alone and do not have an opinion statement directly connected to them in the same thought. Facts are likely tied to talk about briefing documents or to any documents that the groups previously used, is using, or will use in the future (e.g., documents they find on the Internet).
- Question: A genuine question is directed to another speaker that is trying to seek information or an opinion from others. Rhetorical questions, for the purpose of this study were coded not as questions, but as opinions.

A note about rhetorical questions, which are not genuine questions: this form of thought or talk seeks to advance an opinion or argument in the form of a question (e.g., "I don't understand why the school district built the new school. It was a waste of money. What was their reasoning behind that?"). Rhetorical questions are often questions that participants could not answer or are not really meant to be answered. For the purpose of this analysis, such questions were coded as opinion, not question.

Metatalk. Metatalk is talk about the talk. Instead of advancing an opinion claim, this category is talk that attempts to step back and observe what a participant thinks has happened or is happening and why it's happening. This analysis coded metatalk as one of four thought forms: consensus, conflict, clarify own, or clarify others.

- Consensus: Consensus is talk about the speaker's sense of consensus of the group ("I think we all agree that . . . .").
- Conflict: Conflict talk highlights some disagreement or conflict in the group ("I sense some disagreement around . . . .").
- Clarify own: Clarify own is talk that attempts to clarify the speaker's own opinion or fact statement ("What I'm trying to say is. . . .") as an attempt to clarify what the speaker means.
- Clarify other: Clarify other is talk that attempts to clarify someone else's argument/opinion or fact statement ("Sally, so, what you're saying is . . .") as an attempt to clarify what someone else means.

Process talk. Process talk is talk about the deliberation process. This analysis codes process talk in five thought categories: technical problems, technical benefits, deliberation process, deliberation problems, and deliberation process.

- Technical problems: Technical problems consist of a question or statement about problems with the technical features of the system, statements of confusion about the sound system or software, whether anyone can hear them, that they cannot hear, or that do not know what they are doing with the sound system or software.
- Technical benefits: Technical benefits consist of a statement about the positive aspects of a technical feature of a system, or praise for how good software works.
- Deliberation process: Deliberation process poses a question or makes a statement about the process of the deliberation to the moderator or other discussants, poses questions about the moderator or to the moderator about what they are supposed to be

doing, or makes statements about any element of the process before or after their conversation.

- Deliberation problems: Deliberation problems express frustration about the process of what they are supposed to be doing, express questions of confusion about the task or the procedure, or suggest that the participants have strayed off the topic and the participant is trying to get them back on the topic.
- Deliberation positive: Deliberation positive is a statement about the participants' belief that the discussion has been good for them, good for the group, or potentially good for the organization.

Social talk. Social talk brings the group together and builds bonds among the members. This analysis coded Social talk in four thought categories: salutations, apologies, praise, chit-chat.

- Salutations: Salutations are statements of welcome, greeting, hello, and goodbye, see you later, and the like.
- Apologies: Apologies include such statements of apology as "I'm sorry," and statement of hope, such as "I hope it goes better for you."
- Praise: Praise includes statements like thank you, you're welcome, as well as praise for other individuals or the group (e.g., "You've been a good group. I've really enjoyed myself").
- Chit chat: Chit chat includes thought statements that are not on topic relative to the deliberation. These could be jokes or puns (but not as they relate to the problem of schools); they could include social chit chat about the weather, and the like.

Step 3: Determining the thought valence. Researchers may also track valence of the topic, that is, what side of a position the participant takes on the topic being discussed. If the thought expressed is what participants were asked to discuss, then the researcher should select one of the following valences summarized in Table 3 and detailed below.

Table 3 *Thought valence types*

Thought valence types
For
For-but
Against
Against-but
Unsure/none/both equally
Other

- For: For valence is represented by arguing for the choice or offering a for argument without explicitly stating for.
- For-but: For-but valence argues for a choice but offers some quibble or hesitation with the choice or how the choice would be enacted, including "I think it's good, but . . . ." or "I think small learning communities are an ideal solution. Whether or not we'll see them, I don't know."
- Against: Against valence involves arguing against the choice or offering an argument against the choice without explicitly stating against.
- Against-but: Against-but valence argues against a choice but offers some positive of the choice or how the choice would be enacted, or a counterargument to their against

argument (e.g., making a pro/con argument), including "I think it's not a good solution, unless they. . ." or "I think small learning communities are a bad idea if there are several grade levels within them. But, my children benefited from the magnet school."

- Unsure/none/both equally: This coding category includes a few forms of valence, such as expressing hesitancy with the option, including "I read that there's a problem, but I'm not sure whether it's true or not. I need more information;" questions about the topic that are not valenced; a pro/con argument where it is unclear if the speaker is for or against the choice; and if the speaker makes a claim that does not indicate valence.
- Other: Any talk that is not about the topic under discussion, even if the speaker mentions one of the choice options but the focus of the thought is not on one of the choices, other is coded for valence.

Step 4: Coding elaboration. This step in the coding process considers whether elaboration of the problem or metatalk thought occurred. An elaboration is a statement (i.e., a claim) with some additional explanation. Elaboration can be any further attempt to say what the speaker means or why the speaker may have taken a specific position. If elaboration existed then it was coded according to one of the following four categories summarized in Table 4 and detailed below.

Table 4 *Elaborations types*

Elaboration
Personal experience
Briefing documents
Mass media
Other participants

- Personal experience: This form of elaboration includes such personal experience as personal stories, first-hand accounts, accounts from close friends or family members.
- Briefing documents: Elaboration can emerge from references to briefing documents —implicitly or explicitly—and include statements of absence of or problems with facts in briefing documents.
- Mass media: This form of elaboration includes explicit references to the mass media, including the Internet; if a speaker mentioned advertising, such as "you can see that the district isn't running any advertising," then this talk was code as mass media.
- Other participants: Elaboration that refers back to the reasons from other participants or prior comments in the discussion; but it must be an explicit reference back, such as "like Charles said." The thought needs to clearly use another participant's argument or evidence as a reason for the speaker's own opinion.

Step 5: Coding the moderator's statements. If the speaker is the moderator, his or her thoughts are broken into turns and coded according to the categories summarized in Table 5 and detailed below.

Table 5 *Moderator type of talk and thought categories*

Type of talk	Thought categories
Problem talk	Topic addressed
Metatalk	Summary of discussion
	Disagree/Agree
	Off-topic move
	Intervention
	Invite others
Process talk	Introduction
	Deliberation Process
	Technical Process
Social talk	Anything not on topic
	Chit Chat

Problem talk. The moderator's problem talk is only coded as topic, which refers to the subject the discourse is intended to address.

Metatalk. The moderator's metatalk fits into five thought categories: summary of discussion, disagree/agree, off-topic move, intervention, and invite others.

- Summary of discussion: Summary of discussion is coded if a moderator offers a summary of the discussion, not necessarily a summary of entire discussion, but what has proceeded the last few turns.
- Disagree/Agree: This thought category is coded if a moderator offers a statement or question about agreement or disagreement within the group, queries participants about the agreement/disagreement, including general questions.

- Off-topic move: Off-topic move refers to moderator attempt to bring participants who have moved off topic back to the topic.
- Intervention: This category is coded in the event that the moderator intervenes with two participants who are dueling or are in conflict.
- Invite others: When a moderator asks for other opinions from people that have not yet been heard, this category is coded.

Process talk. Moderator process talk is coded in three categories: introduction, deliberation process, and technical process.

- Introduction: Moderator speech that invites participants to introduce themselves is coded as introduction.
- Deliberation process: Moderator statements about the deliberation process, including his or her self- introduction, ground rules for discussion, task definition and clarification about briefing documents, are coded as deliberation process.
- Technical process: Statements made about the moderator's own or participants' troubles with the process are coded in this category.

Social talk. Moderator social talk is all coded in a single category, social. Social thought statements that are not on topic relative to the deliberation, such as jokes or puns, social chit chat about the weather, hello, goodbye, thank you and so on.

Step 6: Calculating the percentage of speaker talk. In addition to categorizing the thought types, valence, and elaborations of the speakers' talk, the researcher calculated the percentage of speaker talk. This step enabled better understanding and interpretation of the relationships within the PLC. The number of comments made by each participant in the

recorded conversations were added together and then divided by the total number of comments in the observed conversations at that grade level to determine the percentage of speaker talk.

Other coding considerations. Stromer-Galley (2007) stated the importance of coders considering themselves a part of the interaction. This consideration helps them to better understand what was being expressed by the speakers. When the coder encounters a speaker's utterance that does not have a clear rule to help guide the assignment of code, the coder should reflect on the conversation and his or her interpretation of the utterance to assign a code (Stromer-Galley, 2007). At times, the researcher in this study had to rely on Stromer-Galley's advice to code unique utterances. By coding thoughts and conducting follow-up interviews, the researcher was able to better understand the types of deliberation that took place during the observed sessions.

Interviews and Reflection Sheets

Interview audio-recordings were transcribed. The researcher then read these transcriptions along with the reflection sheets and highlighted units of thought perceived as important. The researcher then categorized or sorted these units of thought into sets of like items. These categories were coded and indexed. The researcher finally developed an outline based on the identified issues and themes.

Validation Procedure

Four tests have commonly been used to establish the quality of any empirical social research: construct validity, internal validity, external validity, and reliability. As case studies are a form of such research, these tests are relevant to the present case study. Construct validity identifies the correct operational measures for the concepts being studied. Internal validity seeks to "establish a causal relationship, whereby certain conditions are believed to lead to other

conditions, as distinguished from spurious relationships" (Yin, 2014, p. 46). External validity defines the domains to which a study's findings can be generalized. Finally, reliability demonstrates that the operations of a study, such as data collection procedures, can be repeated with the same results (Yin, 2014). Several considerations have been taken throughout the design of this study to ensure the validity and trustworthiness. Provision for each test will be described below.

Construct validity. Critics of the case study method often point to the fact that a case study investigator fails to develop a sufficiently operationalized set of measures and that subjective judgments are used to collect data (Yin, 2014). Four tactics are available to increase construct validity when conducting case studies, and applicable tactics were employed in this study. First, the study used multiple sources of evidence to encourage converging lines of data for analysis. Transcriptions of audio-taped conversations, transcriptions of audio-taped interviews, video-tapes of class lessons, teacher reflections and researcher observation notes provided these multiple pieces of evidence for analysis.

Second, establishing a clear chain of evidence is relevant to construct validity of the present study. The chain involved the following researcher activities: (a) case study questions were created, (b) a case study protocol was detailed, (c) the case study data base contained the evidentiary sources for the report, (d) the sources were consistent with the protocol, and (e) the database linked to the protocol and the original study questions.

The third tactic involves using a proven method of operationalizing data analyses. Utilizing Stromer-Galley's coding scheme provided the present study a proven method of data analysis for deliberation.

Finally, care should be exercised when using data from electronic sources (Yin, 2014). Considering the fact that this study did not use data from electronic sources such as Survey Monkey, online chats or blogs, this tactic was not a concern for the construct validity of this study.

Internal validity. Concern for internal validity in case study research extends to the problem of making inferences (Yin, 2014). A case study involves an inference every time an event cannot be directly observed. By anticipating rival explanations and ensuring that the evidence is convergent, which the logic model that this study employed accomplishes, the researcher established internal validity.

External validity. The next validity test involves knowing whether a study's "findings are generalizable beyond the immediate case study" (Yin, 2014, p. 48). The external validity problem has been a major barrier to completing case studies. Critics argue that single cases offer a poor basis for generalization. This criticism is grounded in the notion that generalization should be applied to a larger universe. Ultimately, this study developed analytical generalizations or working hypotheses (Yin, 2014) regarding the impact of PLCs on teacher planning and instruction. The expectation was that these analytical generalizations and working hypotheses will be instructive both in the development of future case study research and in designing and implementing PLCs to enhance teacher learning. Yin (2014) stated that the identification of appropriate theory or theoretical propositions also helps to establish the groundwork for addressing the external validity of the case. The theoretical proposition, as mentioned above, asserted that effective PLCs engaged in deliberation will impact teacher planning conversations, which will, in turn, impact a teacher's instructional decisions.

Reliability. The goal of reliability is to minimize error and bias within a study. If another researcher were to conduct a study following the same procedures described here, with the same case, they should arrive at the same findings and conclusions. An important note to readers of case study research is that reliability is not synonymous with replication. Documentation of the procedures of a case study is necessary to meet the demands of reliability. Without such documentation, one could not even repeat their own research. Case study researchers must document and follow procedures through the development of a case study protocol and case study database (Yin, 2014). The protocol and database for this study are set forth above. With these elements in place, the present study claims reliability.

CHAPTER IV—ANALYSIS

Descriptive Results

The purpose of this study was to better understand the role deliberation plays in the planning conversations of professional learning communities (PLCs), the impact of deliberation on the instructional decisions of the participating teachers, and their perceptions of the relationship between their PLC conversations and instructional decisions. The data site for this study was a pre-K-12 school district in a mid-sized college town in Kansas. Three PLCs were selected for participation in this study: one at the elementary level, one at the middle school level and one at the high school level. Within each PLC, the researcher collected data from the following sources: audio-recorded conversations of whole groups, video-recorded lessons of individual teachers and their corresponding written reflections on the lessons, audio-recorded interviews with each participant, and researcher observation notes made through-out the course of this study. The descriptive results tell how each data source was collected and analyzed and how each one relates to a specific research question.

Audio-recorded PLC conversations: purpose, collection, and coding approach. The researcher audio-recorded conversations using a digital recording device while attending the PLC sessions. After each session, the researcher transcribed the conversations and then coded them based on the framework established by Stromer-Galley (2007). For each PLC, totals of the units coded to each category of talk and thought are displayed in the tables below. These data were then analyzed according to the elements present in deliberation as identified by Stromer-Galley (2007). Added to the descriptive results are researcher observations that are pertinent to the findings. This descriptive analysis provides the basis for the researcher to answer research questions #1—How does the professional learning community deliberate to improve student

learning?—and research question #2—What is the impact of deliberation on PLC planning conversations?

As previously mentioned, the audio-recorded conversations were coded based on Stromer-Galley's (2007) deliberation schema. To begin the coding, the researcher reviewed the schema then read through the transcripts to familiarize her with what the different categories looked like in the recorded conversations. This activity provided the researcher with a good sense of how to interpret each utterance. An explanation of each type of talk along with a representative comment from the transcripts follows:

Problem talk. Talk about the problem is talk that focuses on the topic being considered. Opinions, agreements, disagreements, facts, and questions all deal with the problem being discussed. Problem talk was represented by such comments as "I think we want to include Pythagorean triple and give three choices" or "that's right, I really liked those units on grammar."

Metatalk. Metatalk is talk about the talk. Metatalk was represented by comments like "What I'm trying to say is a graphic organizer would be better than just having them write the characteristics," or "So are you saying that you don't feel that having them draw a picture and writing an equation is enough?"

Process talk. Talk about the process is talk that focuses on the technical and deliberative process. Process talk was represented by such comments as "What are we supposed to be talking about today?" or "Are we supposed to fill out this agenda?"

Social talk. Social talk is talk that brings the strangers together by building social bonds. Social talk was represented by such comments as "My sister is graduating this weekend," or "Thank you for sharing that."

Thought valence. The researcher also coded the valence of thought. Statements made For the choice being discussed reflected the following sentiment: "I like it", "I agree," or "Yeah, it fits in the coordinate plane."

For-but statements argue for a choice but offer some quibble or hesitation with the choice or how it would be enacted. Those statements sounded like "Right. It is a geometry concept but that doesn't necessarily mean they have to learn it in geometry," or "I like the idea of taking the students to the bowling alley, but it does have a bar in it." Against statements argue against a choice. These were represented by such comments as "There isn't any point for students to write that out anymore," or "We do not have enough time to teach them that algebraic concept." Against-but statements argue against a choice but offer some positive of the choice or how it would be enacted. These statements were reflected by comments like "I don't think it is a good test question unless we add the application part," or " I think posting student results is a bad idea, but Judy did it last year". Unsure/none/both equally statements express hesitancy with the option; they include questions that are not valenced and pro/con arguments where the researcher is not sure whether the speaker is for or against the choice. Statements in this category sound like "I am confused," or "That's radius, but these angles and stuff?" Other statements are anything that is not about the choices being discussed. Representative statements include "I feel like crazy people wrote these texts," or "Not everybody uses everything they learned in school."

Audio-recorded PLC conversations. The descriptive analysis of audio-recorded conversations is organized by school level: elementary, middle, and high school.

Elementary school PLC conversations. At the elementary level, three teachers participated in the recorded conversations. Speakers A and B were female and Speaker C was male. All speakers had equivalent levels of experience. In the six conversations observed and

recorded, the topics discussed focused on math, reading, and student activities (see Table 6). In 6/6 conversations, the curricular areas discussed were math and reading. During the course of 3/6 conversations, strategies related to those two content areas were shared and deliberated. In the remaining 3/6 conversations, math and reading were the main topics, but talk focused more on the impending state assessment in those areas. Other curricular areas were not discussed during the observed conversations.

Table 6 *Overview of elementary conversations*

Chronology	Topics discussed
Conversation #1: 2/11/2014	Math and reading strategies Upcoming state assessments in math and reading
Conversation #2: 2/25/2014	Math groupings and instructional strategies in math and reading
Conversation #3: 3/04/2014	Math and reading instructional strategies and planning for a reward party for those who met their reading goals
Conversation #4: 3/11/2014	Scheduling of testing times for the upcoming state assessments in math and reading
Conversation #5: 4/01/2014	Practice tests for the upcoming state assessments in math and reading; math strategies and planning for an end of year field trip
Conversation #6: 4/08/2014	Planning for a math and reading review before the upcoming state assessments

Types of talk. Tables 7 and 8 report the elementary PLC conversation coded totals by type and thought level and by thought level and conversation. In these conversations, problem talk—talk about the issue being considered—accounted for 763 of the 868 statements made. Of that total, 39% were statements of fact, 25% expressed an opinion, 28% posed a question, 8% expressed agreement, and no disagreement statements were made (see Figure 1).

Table 7 *Elementary coding by level of thought*

Grade Level: Elementary	Problem					Metatalk				Process					Social				Thought Valence						Elaboration				% of Speaker Talk		
	Opinion	Question	Disagreement	Agreement	Fact	Consensus	Conflict	Clarify Own	Clarify Others	Technical Problems	Tenchical Benefits	Deliberation Process	Deliberation Problems	Deliberation Positive	Salutations	Apologies	Praise	Chit Chat	For	For-but	Against	Against-but	Unsure/None/Both Equally	Other	Personal Experience	Briefing documents	Mass media	Other Participants	Speaker A	Speaker B	Speaker C
Conv. 1 Date: 2/11/14	27	28		7	40	3		1	6								1		21	20	1		53	18	2	2			47	30	23
Conv. 2 Date: 2/25//14	21	36		6	45	1		1	2								1	1	29	8	3		42	30	2				31	45	24
Conv. 3 Date: 3/04/14	44	27		13	58	1			10			2					1	2	52	29	4	4	51	13	8	2			33	39	28
Conv. 4 Date: 3/11/14	18	28		7	36			2	1							1		8	23	24	7		33	5					30	33	37
Conv. 5 Date: 4/01/14	35	52	1	6	67	6		2	10							1		15	55	23	3		80	18	2				36	34	30
Conv. 6 Date: 4/08/14	46	42		23	50	1		1	6							2	4	12	77	27	2	1	24	38	4	1			36	40	24
Column Totals	191	213	1	62	296	12	0	7	35	0	0	2	0	0	0	4	7	38	257	131	20	5	283	122	18	5	0	0	213	221	166

Table 8 *Elementary thought totals*

	Conv. 1	Conv. 2	Conv. 3	Conv. 4	Conv. 5	Conv. 6	Total
Problem	102	108	142	89	161	161	763
Metatalk	10	4	11	3	18		54
Process	0	0	2	0	0	8	2
Social	1	2	3	9	16	18	49

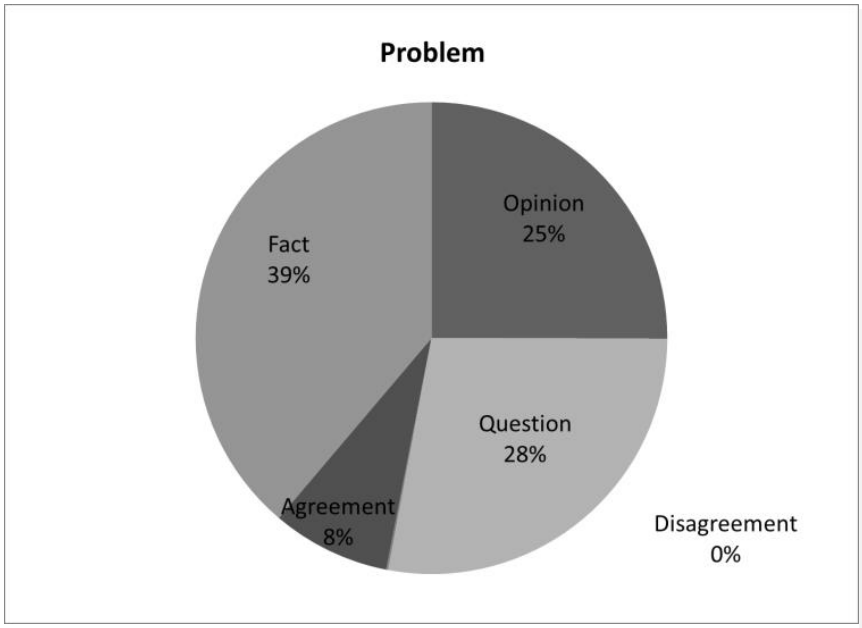

Figure 1. Elementary PLC problem talk distribution by thought categories.

Metatalk—talk about the talk—accounted for 54 of the 868 statements. Within this category of thought, 65% of the statements attempted to clarify their colleague's thinking, 13% of the statements clarified their own thinking, 22% expressed group consensus, and no conflict statements occurred (see Figure 2).

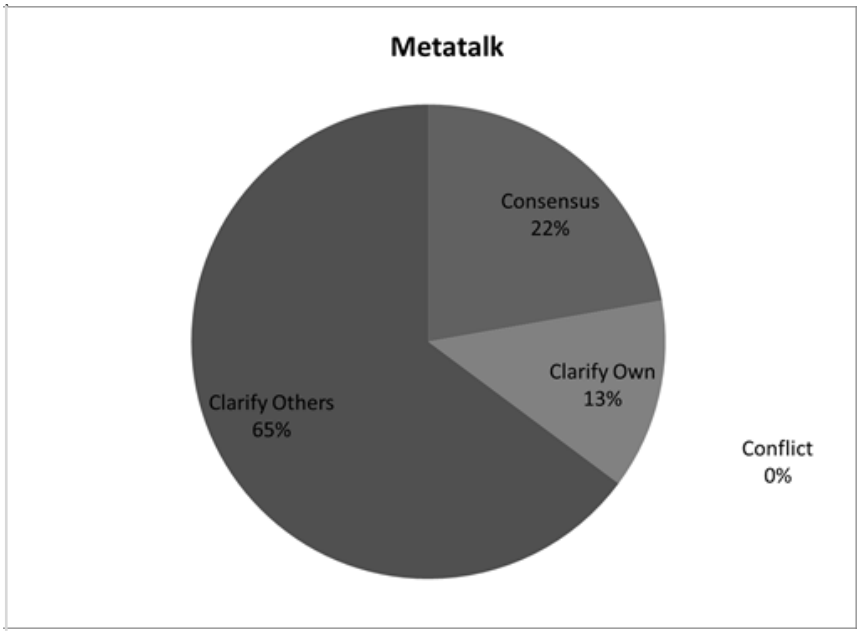

Figure 2. Elementary PLC metatalk distribution by thought categories.

Two of the 868 statements were process statements—statements made about the technical aspects of deliberation. Both of these statements were deliberation process statements asking what they were to be doing in their PLC session.

Forty-nine of the 868 statements were social statements—talk that builds social bonds. Of those social statements, 78% were chit chat, 14% were statements of praise, 8% were statements of apology and no salutations were recorded (see Figure 3).

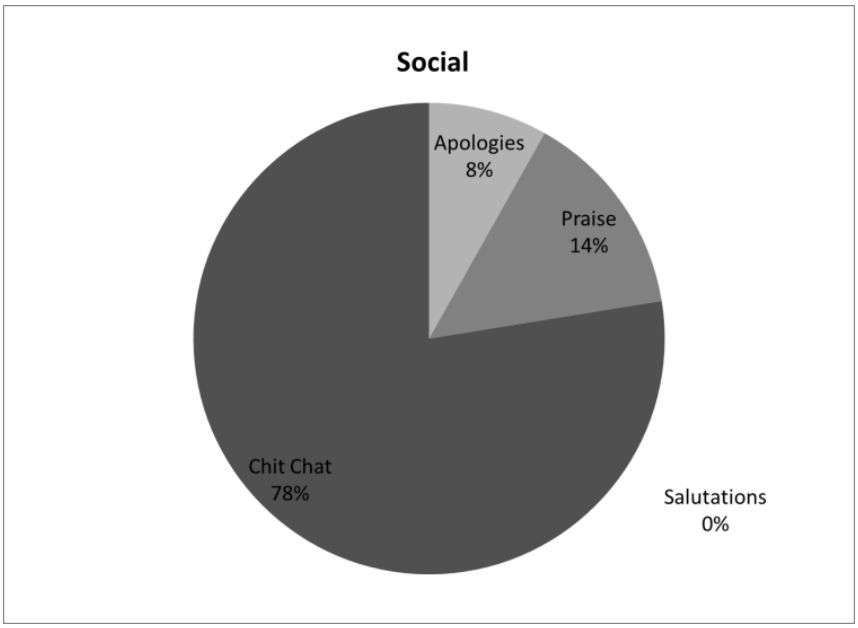

Figure 3. Elementary PLC social talk distribution by thought categories.

Thought valence. In terms of valence of thought, 257 statements (31%) were determined to be For the argument being made. One hundred thirty-one statements (16%) were classified as For-but statements expressing agreement with the choice while offering some sort of hesitation with how the choice would be enacted. Expressions Against the argument accounted for 20 statements (2%), and Against-but statements that argued against the choice but offered something positive about the choice totaled 5 statements or 1%. Unsure/none/both equally statements that expressed some hesitancy with the option or a statement in which it was unclear whether the speaker was for or against the choice totaled 283 of 868 statements (35%). Finally,

122 other statements (15%) were made, that is, those that have been on a related topic but not one that had been designated for that session (see Figure 4).

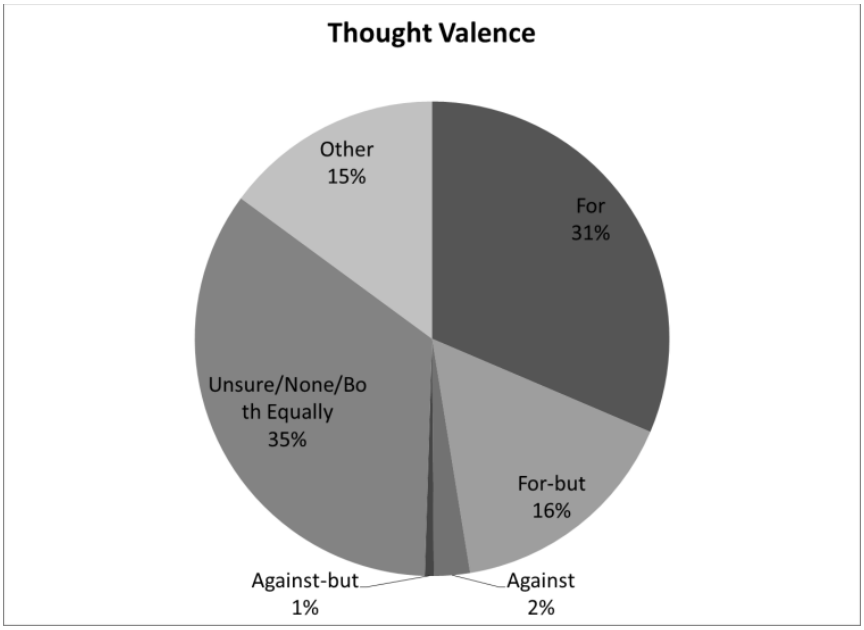

Figure 4. Elementary PLC thought valence distribution by category.

Elaboration and Speakers. Elaboration occurred in 23 of the 868 statements. In 18 of these statements, the elaboration was based on a personal experience of the speaker. In five of the statements, elaboration was based on the briefing document with which they were working. During these conversations, Speaker A talk accounted for 35% of the conversation, Speaker B talk 37%, and Speaker C talk 28% (see Figure 5).

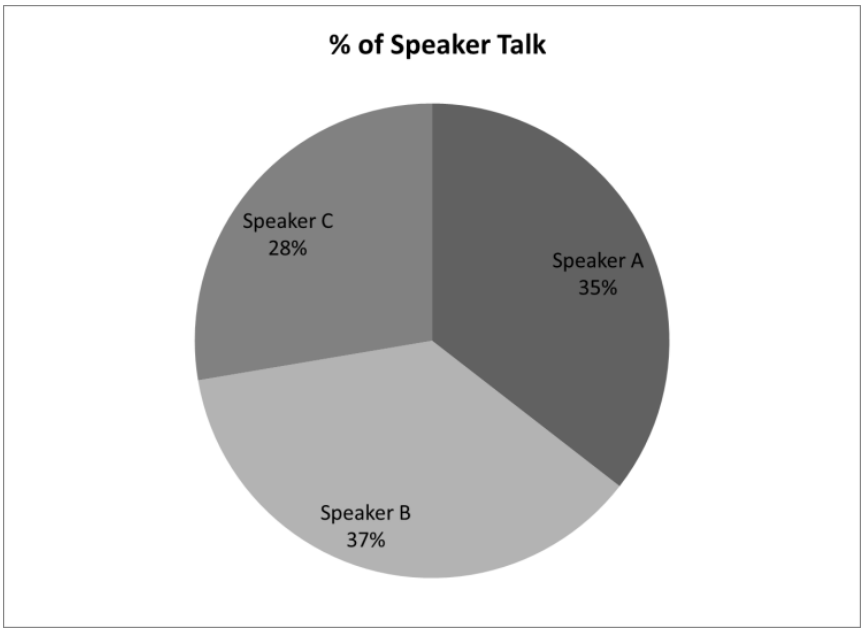

Figure 5. Elementary PLC percentage of speaker talk.

Middle school PLC conversations. At the middle school level, four teachers participated in the PLC conversations. Two were female and two were male. Speaker A was a veteran, female teacher who was also the group facilitator. Speaker B was a veteran, male teacher. Speaker C was a new, male teacher; and Speaker D was a new, female teacher.

At the middle school level, the topics of conversation centered around department business and the sharing of resources (see Table 9). In Conversation #1, the teachers discussed how to allocate department funds that were available to them for the remainder of the year and

then informally shared resources/strategies they had used in the classroom such as Kagan Cooperative Learning. In Conversation #2, the facilitator had recently returned from the National Science Teachers Association (NSTA) conference and shared resources from sessions attended. The discussion then evolved to a more general sharing of how to use a web resource in the classroom.

Table 9 *Overview of middle school conversations*

Chronology	Topics discussed
Conversation #1: 1/15/2014	Department business; sharing of resources
Conversation #2: 4/09/2014	NSTA conference sessions; sharing of resources

Types of talk. Tables 10 and 11 report the middle PLC conversation coded totals by type and thought level and by thought level and conversation. Of the 225 total statements made in the two recorded conversations, 192 were coded as problem talk Within that category, 47% of the statements were categorized as fact statements, 22% expressed an opinion, 17% posed a question, and 14% reflected agreement with the talk. No disagreement statements were coded (see Figure 6).

Table 10 *Middle school coding at level of thought*

Grade Level: Middle	Problem					Metatalk				Process					Social				Thought Valence						Elaboration				% of Speaker Talk			
	Opinion	Question	Disagreement	Agreement	Fact	Consensus	Conflict	Clarify Own	Clarify Others	Technical Problems	Tenchical Benefits	Deliberation Process	Deliberation Problems	Deliberation Positive	Salutations	Apologies	Praise	Chit Chat	For	For-but	Against	Against-but	Unsure/None/Both Equally	Other	Personal Experience	Briefing documents	Mass media	Other Participants	Speaker A	Speaker B	Speaker C	Speaker D
Conv. 1 Date: 1/15/14	21	11		13	38	3			6								1	9	54	17		3	16	2	3				48	6	33	13
Conv. 2 Date: 4/09/14	21	21		14	53			1	2								1	10	63	9	1		25	14	2				42	18	17	23
Column Totals	42	32	0	27	91	3	0	1	8	0	0	0	0	0	0	0	2	19	117	26	1	3	41	16	5	0	0	0	90	24	50	36

Table 11 *Middle school thought totals*

	Conv. 1	Conv. 2	Totals
Problem	83	109	192
Metatalk	9	3	12
Process	0	0	0
Social	10	11	21

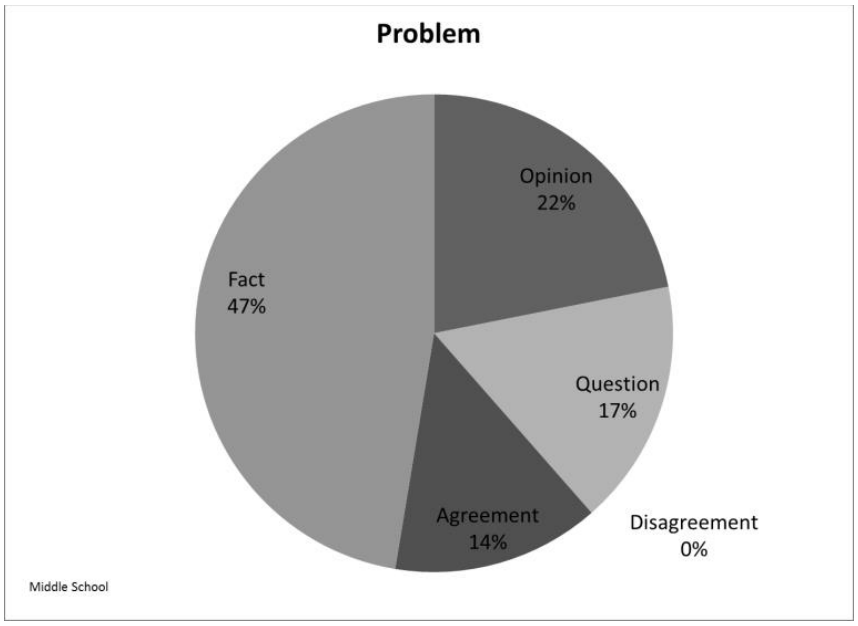

Figure 6. Middle school PLC problem talk distribution by thought category.

Metatalk was coded in 12 of the 225 statements. Sixty-seven percent of those statements were clarifying the statements of others, and 8% were clarifying the speaker's statement. Group consensus was noted in 25% of the statements with no conflict statements recorded (see Figure 7).

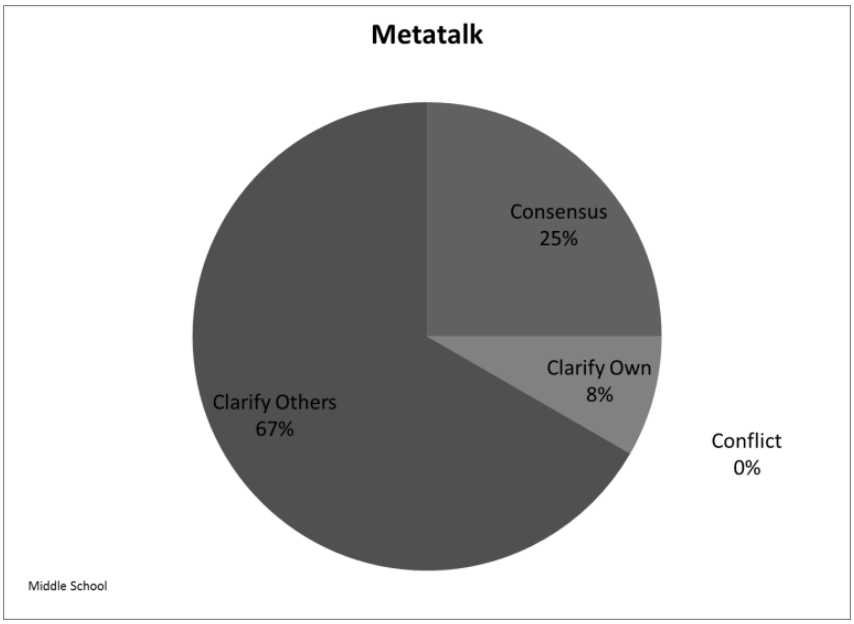

Figure 7. Middle school PLC metatalk distribution by thought category.

There were no process statements made in the middle school PLC conversations, however, 21 of the 225 statements made were coded as social statements. Ninety percent of those statements were chit chat and 10% were praise statements. No apology or salutation statements were recorded (see Figure 8).

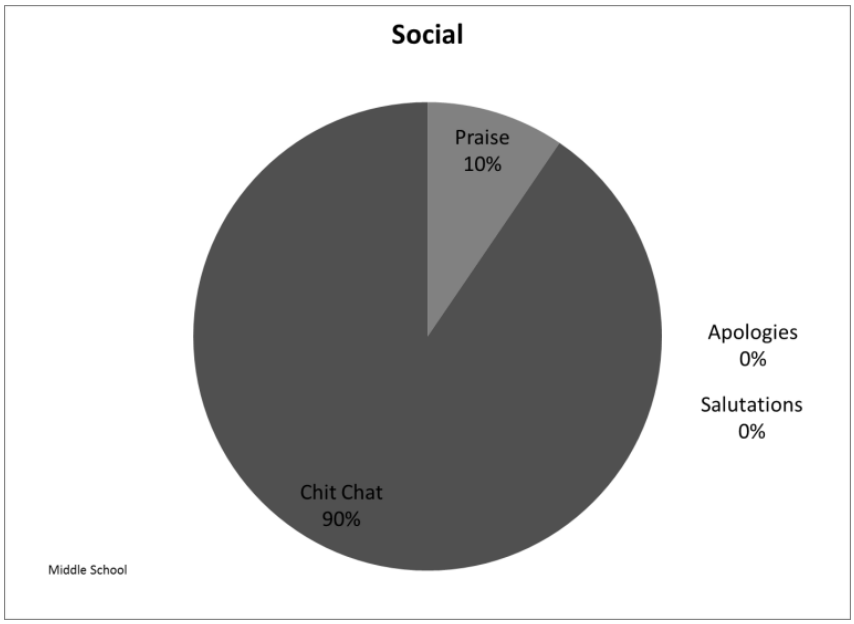

Figure 8. Middle school PLC social talk distribution by thought category.

Thought valence. Valence of the thought coding determined that 117 statements (57%) were For the choice being expressed and 26 statements (13%) were For -but statements expressing agreement with the choice but offering some sort of hesitation with how the choice would be enacted. Expressions Against the argument accounted for one statement (<1%) and Against-but statements that argued against the choice but offered something positive about the choice totaled three statements (1%). Unsure/none/both equally statements that expressed some hesitancy with the option or a statement in which it was unclear whether the speaker was for or against the choice totaled 41 of 225 statements (20%). Sixteen other statements (8%) were those

that may have been on a related topic but not one that had been designated for that session (see Figure 9).

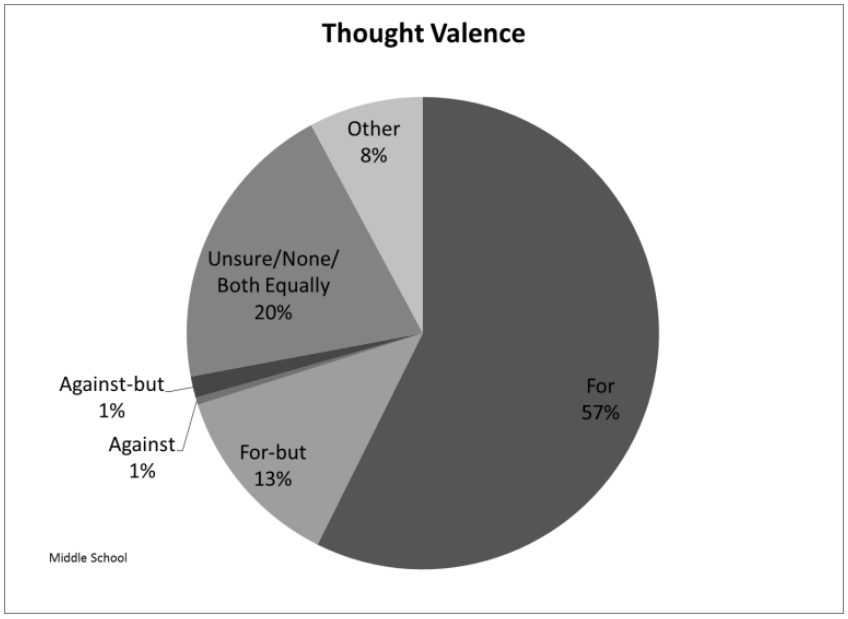

Figure 9. Middle school PLC thought valence distribution by category

Elaboration and speaker. Elaboration occurred in five of the 225 statements. In all five statements, the elaboration was based on a personal experience of the speaker. During these sessions, Speaker A's talk accounted for 45% of the conversations, Speaker B added 12% of the talk, Speaker C provided 25% of the talk, and Speaker D accounted for 18% of the conversation (see Figure 10).

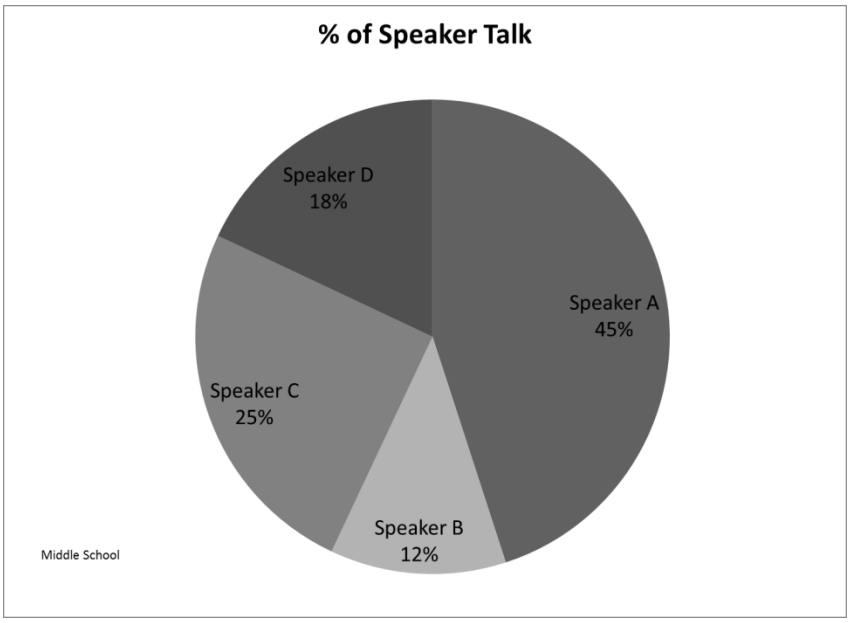

Figure 10. Middle school PLC percentage of speaker talk.

Facilitator talk. The middle school level was the only PLC that had a designated group facilitator. According to Stromer-Galley's (2007) framework, the facilitator is to be analyzed separately. Based on the coding framework, the middle school facilitator made 83 of the 225 statements in the conversations. These statements were distributed as follows: 11 problem talk focused on department business, nine problem talk focused on conference sessions, 40 problem talk focused on resources, 15 social talk statements coded as chit chat, three statements of metatalk in agreement with the group, and five statements of metatalk inviting others to speak.

High school PLC conversations. At the high school level, three teachers participated in the recorded conversations, and all were female. Speakers A and B were first and/or second year teacher. Speaker C was a veteran teacher. In the six conversations observed and recorded at the high school level, the topics of conversation centered on lesson planning and test design. Three of six conversations involved collaboratively planning an upcoming Geometry lesson; 3/6 conversations reflected the teachers' deliberations on a Geometry test design and format; and 1/6 conversations included a brief conversation on the outcome of the recent test the group designed and delivered with each teacher sharing the percentage of their students who passed the test and their own opinion of the test (see Table 12).

Table 12 *Overview high school conversation topics*

Chronology	Topics discussed
Conversation #1: 1/22/2014	Lesson planning for an upcoming geometry lesson
Conversation #2: 2/26/2014	Test design including test questions, test format and weighting
Conversation #3: 3/07/2014	Lesson planning for an upcoming geometry lesson
Conversation #4: 3/26/2014	Test design including test questions and test format
Conversation #5: 3/28/2014	Test design including test questions and test format
Conversation #6: 4/02/2014	Surface analysis of test recently given; lesson planning for an upcoming geometry lesson

Types of talk. Tables 13 and 14 report the high school PLC conversation coded totals by type and thought level and by thought level and conversation. In these conversations, problem talk accounted for 1160 of the 1348 statements made. Of those problem talk statements, 36%

stated a fact, 29% expressed an opinion, 22% posed a question, 12% expressed agreement, and 1% expressed disagreement (see Figure 11).

Table 13 *High school coding at level of thought*

Grade Level: High	Problem					Metatalk				Process					Social				Thought Valence						Elaboration				% of Speaker Talk		
	Opinion	Question	Disagreement	Agreement	Fact	Consensus	Conflict	Clarify Own	Clarify Others	Technical Problems	Tenchical Benefits	Deliberation Process	Deliberation Problems	Deliberation Positive	Salutations	Apologies	Praise	Chit Chat	For	For-but	Against	Against-but	Unsure/None/Both Equally	Other	Personal Experience	Briefing documents	Mass media	Other Participants	Speaker A	Speaker B	Speaker C
Conv. 1 Date: 1/22/14	36	45		30	97	17		11	11								1	24	119	18		5	75	30					47	32	21
Conv. 2 Date:2/26/14	63	75	3	39	51			4	11									2	139	20	5	3	52	27	5	1			37	35	28
Conv. 3 Date: 3/07/14	32	28	3	11	95	1		3	5							3	2	1	72	21	5		66	14	1				44	32	24
Conv. 4 Date:3/26/14	39	36	1	20	75	9		6	6							1		26	87	14	18			3					38.5	38.5	22
Conv. 5 Date: 3/28/14	77	29	3	25	26	1		8	16							1	1	9	60	17	5		56	47	9	2			41	26	33
Conv. 6 Date: 4/02/14	84	44	3	16	74				5									3	77	15	17	15	94	8	3	1		1	17	43	40
Column Totals	331	257	13	141	418	28	0	32	54	0	0	0	0	0	0	5	4	65	554	105	50	23	343	129	18	4	0	1	224.5	206.5	168

Table 14 *High school thought totals*

	Conv. 1	Conv. 2	Conv. 3	Conv. 4	Conv. 5	Conv. 6	Total
Problem	208	231	169	171	160	221	1160
Metatalk	39	15	9	21	25	5	114
Process	0	0	0	0	0	0	0
Social	25	2	6	27	11	3	74

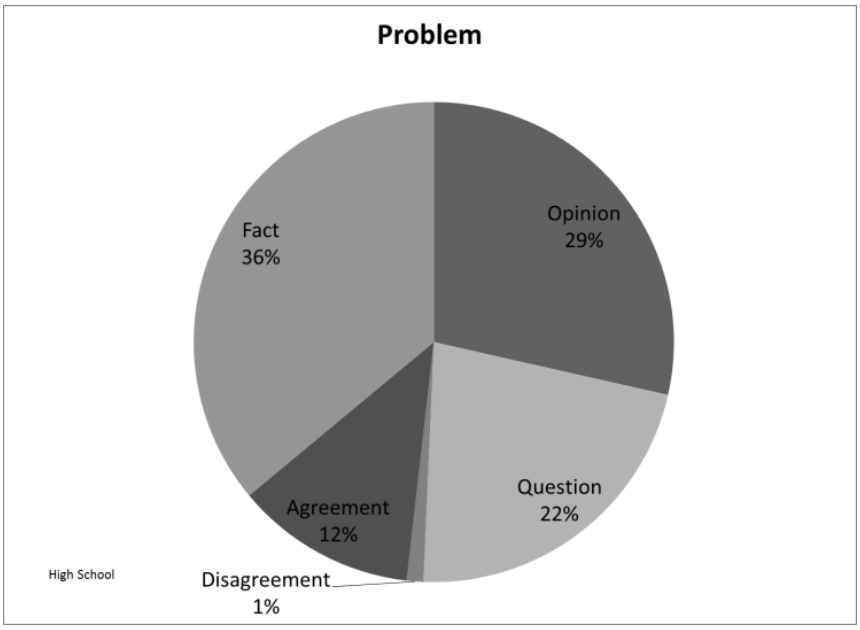

Figure 11. High school PLC problem talk distribution by thought category.

Metatalk accounted for 114 of the 1348 statements. Within this category of thought, 47% of the statements made were clarifying statements made by others, 28% were clarifying the speaker's own statement, 25% expressed group consensus, and no conflict statements were made (see Figure 12).

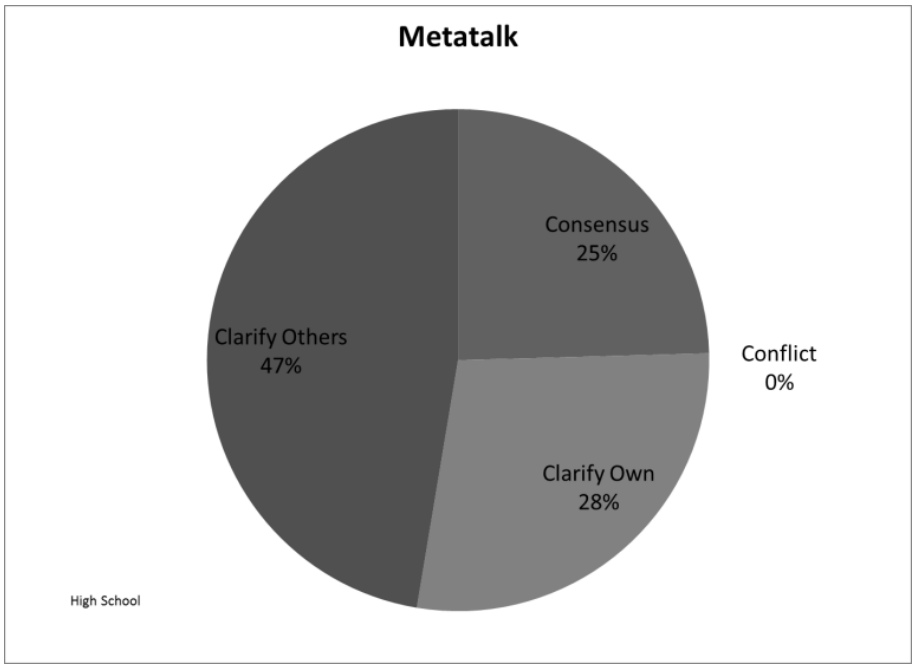

Figure 12. High school PLC metatalk distribution by thought category.

Likewise, no process statements were made; however, 74 of the 1348 statements were social statements. Of those social statements, 88% were chit chat, 5% statements of praise, 7% statements of apology, and none were salutations (see Figure 13).

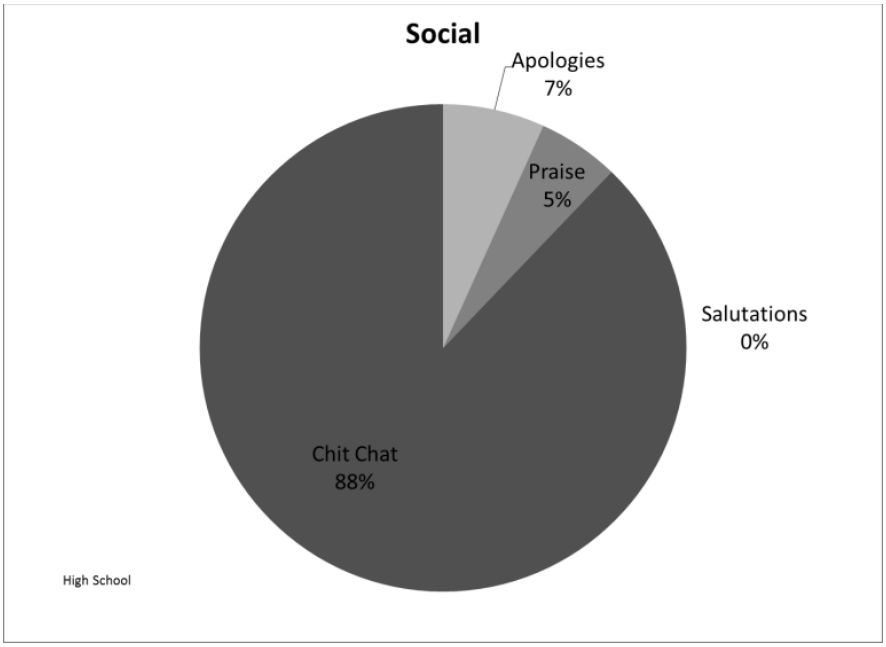

Figure 13. High school PLC social talk distribution by thought category.

Thought valence. In terms of coding the valence of the thought, 554 statements (46%) were For the argument being made, and 105 statements (9%) were For-but statements expressing agreement with the choice but offering some sort of hesitation with how the choice would be enacted. Expressions Against the argument accounted for 50 statements (4%) and Against-but statements that argued against the choice but offered something positive about the choice totaled 23 statements or 2%. Unsure/none/both equally statements that expressed some hesitancy with the option or a statement in which it is unclear whether the speaker is for or against the choice

totaled 343 of 1348 statements or 28%. Finally, 129 other statements (11%) that may be on a related topic but not one that had been designated for that session (see Figure 14).

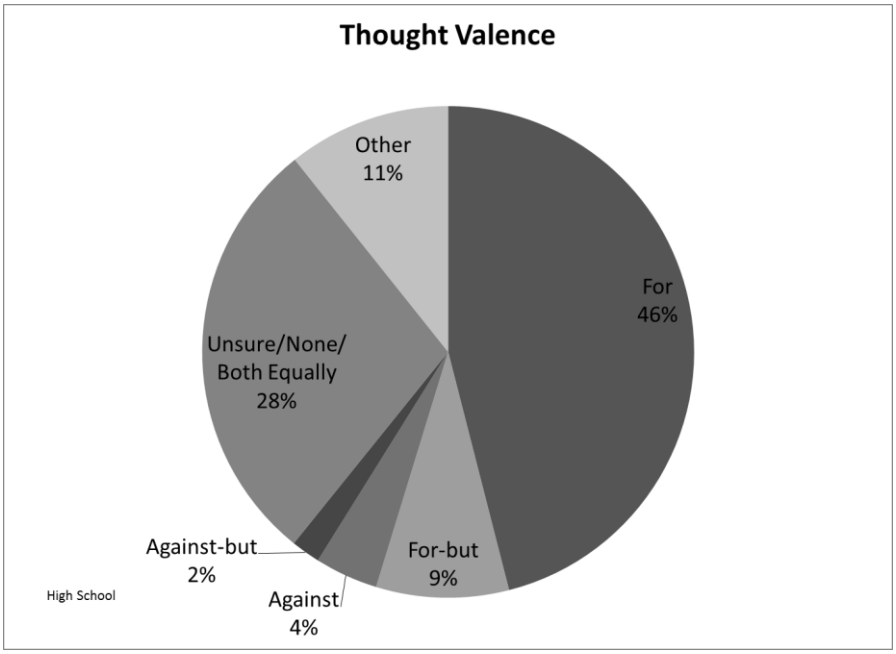

Figure 14. High school thought valence distribution by category.

Elaboration and speakers. Elaboration occurred in 23 of the 1348 statements. In 18 statements, the elaboration was based on a personal experience of the speaker. In four statements, elaboration was based on the briefing document with which they were working, and in one instance the elaboration was based on the experience of another participant. During these conversations, Speaker A talk accounted for 38% of the conversation, Speaker B talk totaled 34% and Speaker C talk provided for 28% of the conversation (see Figure 15).

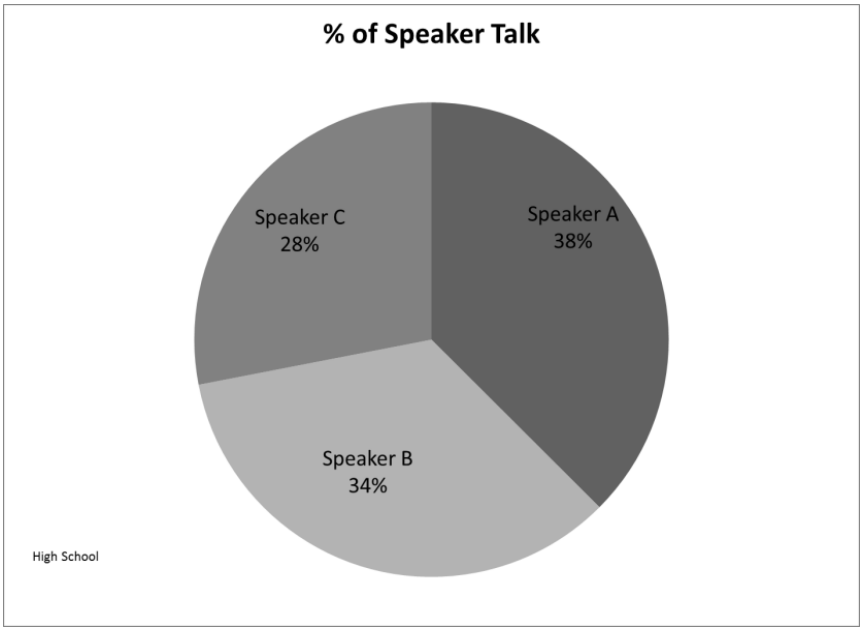

Figure 15. High school PLC percent of speaker talk.

The data detailed above represented the results of the coding of the audio-recorded PLC conversations based on the framework developed by Stromer-Galley (2007). As mentioned previously, it helped the researcher begin to answer the first two research questions. The other data sources which are described below provided additional insights into the PLC conversations.

Video-taped lessons and teacher reflections. During the latter part of this study in late April and early May, 2014, the researcher video-taped a classroom lesson for each

participant in this study. The researcher used a Flip Camera to record the lessons, and immediately downloaded the recordings to each teacher's desktop or laptop computer. The teacher was asked to review the video and then complete a reflection sheet (see Appendix), which the researcher emailed to the teacher prior to the classroom observation. The researcher also made handwritten notes during these lessons that were added to the case study data base. Also via email, the teacher returned the reflective comments to the researcher, who printed them and coded the comments by highlighting units of thought that the researcher believed was important. The units were then categorized or sorted into sets of like units. The categories were coded and indexed. An outline was then developed based on the issues and themes that were identified. A major theme identified through the video and reflection sheet analysis was:

- Teacher learned about and implemented research-based strategies in their lessons.

Teacher interviews. Data were collected from the final source, individual teacher interviews, near the end of the study in April and May, 2014. The semi-structured interview questions were developed based on the research questions for this study, researcher observations of PLC sessions, video of a classroom lesson for each teacher, and teachers' reflections on that lesson. The researcher conducted the teacher interviews in the respective school buildings during the teachers' planning or PLC time. The interviews were audio-recorded and then transcribed by the researcher. Hand-written notes were also taken by the researcher during the interviews and added to a case study database. The researcher then coded these transcriptions by reading them and highlighting units of thought that the researcher believed were important. The units were then categorized or sorted into sets of like units. The categories were coded and

indexed. After coding and indexing the patterns noted in the teacher reflections and interviews, it became apparent that there were several themes that were present in the responses. Those themes included:

- PLCs are a vehicle to sharing professional expertise.
- Addressing student learning, especially in terms of analyzing student data is difficult for teachers.

After identifying the themes that arose through analysis of the classroom lesson, the teacher reflections and the teacher interviews, the researcher sought to validate those themes by comparing the multiple data sources. The researcher then used data from across all sources to support the themes that are discussed in full at the end of the chapter. The analysis of these data helped the researcher to answer research question #3—How do the teachers perceive the relationship between their deliberation in a PLC and their instructional decisions?

Analysis

Deliberation analysis. Stromer-Galley (2007), whose coding schema provided a foundation for the analysis of the PLC conversations utilized in this research, further elaborated on six of the elements that should be present in deliberation: reasoned opinion expression (i.e., claims offering reasons or evidence), sourcing, disagreement, equality, topic, and engagement. The following analysis focused on these elements is based on what occurred in each PLC and is reflective of the total of all conversations at each level. By examining the occurrence of these elements in the audio-recorded PLC conversations, researcher observations, and subsequent participant interview comments, one was able to attempt to answer this study's first research question—How does the professional learning community deliberate to improve student

learning? Following this first level of analysis is a more in-depth analysis of the study's other components, specifically, the video-taped lessons, accompanying teacher reflections sheets, and the teacher interviews organized around the central topics deliberated by the PLCs.

Reasoned opinion expression. Stromer-Galley (2007, p.4) stated, "Rational argument is one of the cornerstones of deliberative and political theory" and "requires individuals to advance positions that can be defended against critique." She asserted that in studies of deliberation, reasoned argument is generally defined in terms of opinion claims. The researcher identified and coded opinion claims in the recorded PLC conversations that were a part of this study. In fact, approximately one-fourth of the statements made at each school level in regards to problem-related statements (i.e., talk focused on the topic) expressed an opinion. Opinion statements were observed in 25% of the comments made at the elementary level, 22% at the middle school, and 29% at the high school.

For the most part, the topics discussed at the elementary level included math and reading strategies necessary to prepare students to succeed on the upcoming state assessments in those content areas. Based on researcher observations and written transcriptions, the opinion statements mainly focused on problems of how and with what devices or strategies to teach given topics. The statements were made mainly from a basis of the nature of the teaching strategy that was or should be employed for a given topic, with concern for both the subject and the learner. At the elementary level, time was a resource often discussed when they were deliberating on which strategies to use, especially in terms of action plans needed to best impact student learning.

At the middle school level, the topics of discussion primarily focused on the sharing of resources and department business. The opinion statements were directed towards the

instructional resources being shared and references to the lack of money available to purchase some of the tools they believed they needed to employ the strategies.

The high school teachers' main topics of discussion were lesson planning and test design. As a result, their opinion statements tended to focus on which concepts to teach, strategies that could be used to teach those concepts, and what types of questions should be included on the summative assessment. For example, a high school teacher stated, "We are doing them [the students] a disservice if we don't include the equation of circles in this lesson. They are not going to get this in any other class." Overall, these data sources confirm the notion that claims offering reasons were being made in a significant portion of the conversational statements and, therefore, this element of deliberation was in place.

Sourcing. For analysis of deliberation, determining what sources participants are using to support their claims matter. When disagreement occurs, claims based on background documents can be more readily understood and contested than claims based on personal experiences, which are harder to verify and to contest (Stromer-Galley, 2007). Most of the elaborations coded in this study's recorded conversations were based on the personal experience of the participants.

At the elementary level, 23 statements of elaboration out of a total of 868 thoughts were expressed in the six observed conversations. Eighteen of those statements elaborated on a personal experience, and five statements elaborated on the briefing documents. At the middle school level, five statements of elaboration out of a total of 225 thoughts were expressed in the two recorded conversations. All five of the elaborations were based on personal experience. At the high school level, 23 statements of elaboration were made out of a total of 1348 thoughts expressed in the six observed conversations. Eighteen elaborations were based on personal

experience, and four focused on the briefing documents. One statement of elaboration was made based on the experience of another participant.

This pattern is in line with Dutwin's (2002) argument that participants in deliberations primarily use their personal experience as a basis from which to reason. Teachers at all levels reported that a peer's positive personal experience with an instructional strategy was more likely to persuade them to try that strategy than anything else. One elementary teacher remarked, "You heard that they [other group members] had success so that influences you to try it." A middle school group member was asked to elaborate on his personal experience using Kagan cooperative learning in his classroom. In the observed groups, it appears that when an opinion expression was elaborated upon, personal experience was the source teachers drew on most often to support their claims and that, in turn, was a factor in causing other teachers to give consideration to a new idea or perspective.

Disagreement. According to Stromer-Galley (2007), disagreement is an important marker of deliberation. Disagreement is a sign that an issue needs a solution, that is, a conflict needs consideration and resolution. Disagreement is also a sign that some participants in the dialogue hold distinct views on a particular issue (Stromer-Galley, 2007). This fact is important because people who differ on a position are more likely to have their own views further examined and strengthened in a more rational way when they are exposed to disagreement (Stromer-Galley, 2007). What is not prevalent in the analyzed conversations is disagreement. No disagreement statements were coded in the elementary and middle school, with disagreements accounting for just 13 statements (1% of the conversation) at the high school level.

When disagreement occurred at the high school, teachers reported that it was usually because they did not understand the perspective of others. Instead of deliberating, the teachers would withdraw and "process" the information presented. Often they would return with a changed mindset. One high school teacher reported, "I need time to go be alone and work through it, then I can come back and be like 'oh I get it now.'" She continued by pointing out that "everyone has different personalities and has bad days, but we worked through it. We took time and came back to it. It wasn't really [a conflict] about what to teach, but the personalities were the conflicts. People just had bad days." Her high school colleague confirmed that when

> we got a little heated, I said I need to come back and visit this. And we did an hour later. And it's not so much that I disagree with it, but I may just not understand and will need to think about it and come back. If I don't understand, I get frustrated that I can't understand.

She added, "We know each other enough to be able to realize when the others just need an hour to work through it. It's not a disagreement, but it's more of a 'I don't understand.'"

Schneiderhan and Khan (2008) stated that conflict is okay in deliberation. However, when the teachers in this PLC encountered conflict in their conversations, they decided to pause, engage in individual reflection, and then resume their discussions with a new perspective on the issue. They did not appear to see conflict as okay in this setting. "If someone got snippy, it was an immediate 'I'm sorry, I was cranky today'. It was never really I don't like you or what you said," commented a high school instructor. These teachers appeared to attribute what little disagreement that took place to miscommunication or misunderstanding, rather than to disagreement about the issue on which they were deliberating. Participants in a professional setting, such as a school, seem to be aware that conflict with peers can become a personnel issue

that is dealt with by their administrator resulting in possible disciplinary action and therefore is frowned upon. Hargreaves (as cited by Dooner, Mandzuk, & Clifton, 2008, p. 565) pointed out that "too often. . . conflict in schools is seen as a problem, not an opportunity, where purposes are threatened, competence is questioned and undertones of status and power strain the fragile bonds that hold teachers together." Considering this idea, a high probability exists that deliberation in a professional setting may be void of conflict and disagreement.

Additionally, both the elementary and high school PLCs had seemingly created an informal system in which they could opt out of the decision. Teachers commented that they appreciated the fact that they did not have to conform. If their professional judgment told them another approach would be better, they could opt to use that approach without having to come to a consensus. A high school teacher stated

> I think we did a really good job of "this is what I think" and even if they didn't agree, I never felt like I can't still do what I want to do. I understand I'm going to do it this way and you're doing it another way, and that's ok.

An elementary teacher stated

> that's where differing teaching styles come in because I know that what I enjoy doing and what I like to have my students see is not the same as them (PLC group). And it's not necessarily that it was wrong but I just knew it wouldn't work for me. For example, whenever a worksheet was shared I knew in my head that I wasn't going to use it.

When asked if she felt comfortable sharing these thoughts with the group, she explained that, "I really didn't feel that comfortable with it . . . I didn't want them to feel bad." Although the teachers discussed substantive issues surrounding what to teach and how to teach a concept,

group consensus was not a priority. This finding makes sense considering the fact that no protocol or facilitator existed to mediate the disagreement at the high school or elementary levels. As a result, they arrived at an informal means (i.e., opting out) to work through disagreements or to avoid them.

Even though the middle school group had a facilitator, they used the PLC mainly as a vehicle to provide professional development and to share resources. Utilizing the PLC in this way diminished the opportunity for them to have deep discussions about student learning or data analysis, which could have resulted in differences of opinion. Thus, the non-controversial nature of the topics limited the possibility for disagreement. The group facilitator who set the agenda topics and led the discussions indicated that this was how the PLC has functioned since its inception approximately seven years ago and did not recall having any training in how to facilitate difficult conversations.

As previously noted in Stromer-Galley's research, it is difficult to dispute a claim based on a personal experience. Considering that personal experience was the primary source of reasoning noted in this study, one would not expect to find a great amount of disagreement. However, does an absence of disagreement mean that deliberation did not occur or had little impact on the planning conversations? One must consider the work of other researchers in this area. Dryzek (as cited by Dutwin, 2002) suggests that deliberation is communication that produces reflection upon preferences in a non-coercive fashion. According to the communal/conversational framework, deliberation will be only obliquely argumentative (Dutwin 2002). Deliberation involves weighing and examining the reasons for and against a measure and giving careful consideration and mature reflection to choices; it often involves considered action by a group of persons (Harris, 1986). A high school teacher commented

> We don't all teach exactly the same way so it would be unfair to our students if we didn't have that flexibility in our test to change the wording or change the question to meet the needs of my students. So we still kept the commonness but we always felt the flexibility to tweak it.

Therefore, it would appear that disagreement does not necessarily have to be present in deliberation in order for participants to give thoughtful consideration to choices. Alternatively, it could be present, as Dutwin (2002) suggested, in an obliquely argumentative manner, which seems to be more reflective of the high school PLC.

This analysis helps the researcher begin to answer research question #1 –how does the professional learning community deliberate to improve student learning? The observed participants first defined the situation and then, on occasion, offered solutions based on experiences. The participants shared their own stories, spreading information and experiences across participants. Whether disagreement is present or not, what matters more is the reflection that occurs among the group members after hearing the options and reasons presented. Participants used the information they gleaned to make the instructional decisions they believed were in the best interests of their students. Therefore, this study tends to support previous research in its findings that disagreement does not necessarily have to occur to influence one's decision-making paradigm.

Equality. Stromer-Galley (2007) suggested that measuring equality in a conversation could occur in different ways. A researcher might choose to examine how much time each person spoke or the frequency with which each person spoke. Another researcher might be more interested in whether or not each participant had an equal opportunity to speak. The researcher in this study believed that a reasonable assumption was that all participants had an equal

opportunity to speak, considering that the PLC membership consisted of peer teachers of the same content and / or grade level. No administrators or evaluators whose presence might serve to inhibit talk were in attendance. In other words, participants could freely "jump in" if they had something relevant to say. This measure of equality is important in deliberation because, when participants are included, additional information will be contributed and can, in turn, allow the group to examine the topic more completely (Stromer-Galley, 2007). Given that the opportunity to speak was present, it seemed necessary to look at whether teachers took advantage of those opportunities to speak. For this study, the percentage of speaker talk was calculated. The number of comments made by each participant in the recorded conversations were added together and then divided by the total number of comments in the observed conversations at that grade level to determine the percentage of speaker talk. How much people spoke was assessed to determine whether certain people dominated the discussion or if participation was roughly equal.

At the elementary school, the following percentages of speaker talk were noted: Speaker A accounting for 35% of the talk, Speaker B 37%, and Speaker C 28%. Although these percentages reflect a relative equality of talk among the participants, one elementary teacher commented that she did not "always volunteer strategies unless they ask and I could do better with that. I could speak up more." Interestingly, this comment came from Speaker B, who had the highest percentage of speaker talk. She had the self-perception that she needed to contribute more. Her comment reinforces the researcher's previous observation that all members had the opportunity to speak and that the only thing preventing this teacher from speaking up more was herself. Another elementary teacher stated, "I think it worked well having a set time and all

equally contributing." This teacher had the perception that everyone participated equally in that group.

At the middle school level, more discrepancy in speaker talk was observed, with Speaker A accounting for 45% of the talk, Speaker B 16%, Speaker C 21%, and Speaker D 18%. The middle school Speaker A was the group facilitator. Based on her role within the group, she tended to speak more. Note that this leader had not received specific training on how to facilitate conversations, and it appears that she may not have understood that her role was to encourage *teacher* deliberation. The role this group member played will be analyzed in greater detail later in this chapter. In the recorded conversations at the middle school level, most of the talk was a sharing of resources and a discussion of conference sessions the group leader attended. The remaining talk time of the other three participants appeared to contribute to the discussion on a relatively equal basis.

At the high school, Speaker A accounted for 38% of the conversation, Speaker B 34%, and Speaker C 28%. As in the elementary group, the percentages of speaker talk at this level indicated more equality among the speakers. Therefore, in this study, the teachers had a relatively equal opportunity to participate in the observed conversations. Inclusion of participants in the discussion is a critical issue in deliberation. Discussion that is not motivated by inclusiveness is unlikely to produce different results than just allowing members to consider the matter on their own (Schneiderhan & Khan, 2008). By having an opportunity to speak and taking advantage of that opportunity, teachers could share their perspectives on the topic that may have caused others' opinions to be further adjusted and / or changed.

Topic. Groups that exhibit many interactional topics are not as likely to focus on the problem compared to groups that stay focused on a small set of such topics (Stromer-Galley,

2007). If participants discuss issues that are not the planned problem or topic, then their opinions are not likely to be further refined or altered because they were not articulating nor were they exposed to perspectives on that problem or topic (Stromer-Galley, 2007). All of the observed groups had a small set of topics to discuss at their meetings. At the elementary level, most conversations focused on math and reading strategies to help student succeed on the upcoming state assessment. The middle school conversations involved the sharing of resources and such department business as the process they would follow to access department funds. The high school sessions included talk on lesson planning and test design. This small number of topics assisted groups in staying focused on the problem(s) they were discussing.

Moreover, to confirm on-topic deliberation in the observed groups, one can examine two categories in Stromer-Galley's (2007) coding framework—Other and Social. Thoughts that may be on a related topic but not the designated topic for the session were coded as Other. An example of such a statement might be "I feel like crazy people wrote these text books." Contextually, this comment was made in the course of planning for a geometry lesson. The thought was related to the topic, as the teachers were reviewing problems in the text to plan their lessons; however, the comment was not actually relevant to the planning of the lesson on the designated topic and, for that reason, was coded as Other. Talk that was directed toward team bonding was coded as Social. Such comments as "my sister is graduating this weekend" were coded in this manner. This comment apparently was intended to engage group members on a personal level and help them get to know each other better; thus, this comment was coded as Social. Both of these categories of talk (i.e., Other and Social) would be considered off-topic talk. A review of the data shows that talk in the Other category accounted for 15% of the talk at the elementary school, 8% at the middle school, and 11% at the high school. Talk in the Social

category accounted for 6% of the talk in the elementary school, 9% at the middle school, and 5% at the high school. These data suggest that all levels, the sessions stayed on task for the most part and participants discussed the designated topic(s).

To further analyze on-topic talk, researchers may track the valence of the topic, that is, what side of a position the participant takes on the topic being deliberated. At the elementary level, 257 statements (31%) were determined to be For the argument being made or the choice under consideration. One hundred thirty-one statements (16%) were For-but statements expressing agreement with the choice but offering some sort of hesitation with how the choice would be enacted. An illustration of such valence occurred during a session in which the group was talking about teaching parallelograms in an upcoming math lesson. One teacher argued in favor of using a triangle cutting activity and her colleague stated "Yeah, with that activity cutting off the side and moving it helps them to see that it is equal, but instead of having them all do it maybe we should model it first." She went on to say that she has found modeling to be helpful. In this study, when making For-but statement, teachers tended to draw on their own personal experience related to the strategy or option being deliberated which may be why they expressed some hesitancy with their peer's proposal; they knew what would work or not work based on their past experience. Expressions Against the argument accounted for 20 statements (2%), and Against-but statements that argued against the choice but offered something positive about the choice totaled five statements (1%). Statements that expressed some hesitancy with the option or a statement in which it is unclear whether the speaker is for or against the choice totaled 283 of 868 statements (35%). A representative comment would be "It looked like the practice test included periods, commas, and homophones." The researcher found it difficult to determine

whether the teacher meant this statement to identify a positive or negative aspect of the test. For that reason, statements like this were coded as Unsure.

At the middle school, 117 statements (57%) were For the choice being expressed. As an example, one of the teachers was sharing his use of a Kagan strategy called Mix, Pair, Share. His colleague commented that "I can see that would really make a difference with student engagement." The colleague's comment was coded as being For the topic under consideration. 26 statements (13%) at this level were For-but statements. Against the argument accounted for one statement (1%) and Against-but statements that argued against the choice but offered something positive about the choice totaled three statements (1%). Unsure/none/both equally statements totaled 41 of 225 statements (20%).

At the high school, 554 statements (46%) were For the argument being made, and 105 statements (9%) were For-but statements. Expressions against the argument accounted for 50 statements (4%). An example of this occurred during a lesson planning session when one teacher stated that in order to solve a certain problem, the students needed "to know how to complete the square to find the center." Her peer replied "no, they don't need to know that." The latter statement was coded as being Against the choice. Against-but statements totaled 23 statements (2%). A sample of this valence appeared when a teacher said "I don't think that is the right approach for this type of problem but I do think we could use it somewhere else." Unsure/none/both equally statements that expressed some hesitancy with the option or a statement in which it was unclear whether the speaker was for or against the choice totaled 343 of 1,348 statements (28%). As the data suggest, the majority of the valences at each level were coded as For and For-but and were often made in reference to strategies being shared. These data confirm the previous finding that little disagreement occurred in the sessions. Most of the

comments made expressed support For the choice being discussed. However, the fact that statements were coded as For-but, Against and Against-but demonstrates that teachers were not simply "rubber-stamping" the ideas of others, but that reflection and thoughtful consideration of the choice being discussed was taking place, which provides support for the notion that the teachers were engaging in deliberation on the designated topic. Deliberating on the session topics is closely related to the next element of engagement.

Engagement. Engagement in the conversation is important to fostering an environment where opinions can be offered and reflected upon. Engagement can be gauged in a number of different ways. First, one can look at whether participants talked to the topic at hand. If not, the talk would demonstrate low engagement in the topic (Stromer-Galley, 2007). The researcher previously established that off-topic talk was limited for all observed groups. Further confirmation that the groups were on topic and engaged in the conversation can be found in the coding schema used in this case study. Talk focused on the topic would include statements that were coded as problem talk. An example of such a comment might be "I think we want to include Pythagorean triple and give three choices." This statement was made during a high school session in which the teachers were designing a chapter test (i.e., the designated topic of conversation). At the elementary level, 763/868 (88%) of the statements were problem talk related to the designated topic, which primarily focused on math and reading strategies as well as planning for the upcoming state assessment in those content areas. At the middle school level, 192/225 (85%) of the statements were coded as problem talk related to topics associated with resources and department business. At the high school level, problem thoughts accounted for 1160/1348 statements (86%) and reflected their thinking surrounding lesson planning and test

design. The percentages presented at all levels would provide justification for the belief that all groups demonstrated a high level of engagement with the topics being deliberated.

Another means of measuring engagement would be examining the number of questions posed in the conversations. Asking questions signals engagement as it invites interaction with others (Stromer-Galley, 2007). At the elementary level, questions accounted for 28% of the problem talk. At the middle school level, questions accounted for 17% of the problem talk. At the high school level, questions accounted for 22% of the problem talk. In reviewing text questions for an upcoming lesson, a high school teacher asked, "So what does this 'define the radian measure' mean?" and "Do we start with arc lengths and areas of sectors of circles for our area unit?" An elementary teacher queried, "What focus do we want to have for our unit on informational writing?" The middle school facilitator asked a teacher if he could share "how you use Kagan [cooperative learning] in the classroom?" As illustrated in the examples above, many of these questions were deliberative questions regarding curriculum work because their focus was on "What should we do?" and "What should be taught?"—the types of questions over which Dillon and Taylor asserted teachers should be interacting (Dillon, 2009, p. 349). Considering that approximately 20% of the problem talk at each level involved questioning, this finding would demonstrate that teachers were engaged in the conversation and collaborating with their peers regarding the topics discussed.

Metatalk can determine engagement because it generally cannot occur without some reflection on what others have been saying and which now appears to be misunderstood. As mentioned previously, Dryzek suggested that deliberation is communication that produces reflection (Dutwin, 2002). Clarifying a position is a signal that participants were hearing what others said, reflecting and wishing to correct misperceptions of views (Stromer-Galley, 2007).

At the elementary level, metatalk accounted for 54/868 (6% of the conversations) with 65% clarifying others statements, and 13% clarifying the speaker's own thoughts. At the middle school level, metatalk accounted for 12/225 statements (5% of the conversations) with 67% of those 12 statements clarifying what others said and one statement (8%) clarifying the speaker's thought. At the high school level, metatalk accounted for 114/1,358 statements (8% of the talk) with 47% of those statements clarifying what others said while 28% clarified the speakers statement. Although, the number of metatalk statements is comparatively low at each level, Stromer-Galley (2007) asserted that the presence of metatalk at all indicates a high level of engagement with the deliberative process.

Deliberation analysis-a deeper look. The analysis outlined above elaborated on six elements that should be represented in deliberation according to Stromer-Galley's (2007) research—reasoned opinion expression (i.e., claims offering reasons or evidence), sourcing, disagreement, equality, topic, and engagement. After reviewing the data presented, the researcher sought to determine whether the groups actually deliberated or simply discussed the designated topics. This examination includes a discussion of several features related to deliberation outside of Stromer-Galley's (2007) framework.

Deliberation versus discussion. As mentioned previously, in a discussion a person's point of view is shared with others and others share theirs; participants acquire more information about the subject (Hess, 2004). Conversation transcripts and teacher interviews seem to indicate that the groups in this study engaged in discussion, whereby they shared their viewpoints and acquired more information on the designated topics. The question remains, did they actually deliberate?

In a deliberation, a focused exchange of ideas and analysis of multiple views occur with the aim of finding areas of agreement within a group. Deliberation is not just giving a personal opinion but also listening to other people's opinions and trying to find some common ground on the topic under deliberation. Deliberation involves weighing and examining the reasons for and against an idea and giving consideration and reflection to choices. The process often involves considered action by a group of people (Harris, 1986). Did participating PLC members seek out areas of agreement and common ground on specified topics, consider others' perspectives, and use that information to inform their own or the group's professional decisions? Looking at the previously detailed data, the researcher found that, although small in number, the group members did make statements of consensus. The elementary group made 12/868 consensus statements, the middle school made 3/225 statements, and the high school made 28/1348 statements. An example of such a comment occurred during a middle school session focused on department business in which a teacher stated, "Okay, we are all on the same page and if we are getting close to spending our personal budget money and need to go over that, we will notify (group leader)." Additionally, statements showing agreement accounted for 62/868 statements at the elementary level, 27/225 comments at the middle school level, and 141/1348 statements at the high school level. Remarks representing agreement at the high school level included statements such as "Yes, I like that idea," and "You are right, most of these chapters include application problems." The data indicate that attempts at finding common ground and areas of agreement were made in each PLC, albeit not at high levels. Moreover, data from the teacher interviews support the notion that in many cases teachers used the information they acquired in the PLC meetings to inform their instructional decisions.

As mentioned previously, an element of deliberation that was missing for the most part was disagreement. The lack of disagreement does not mean that deliberation did not occur. Dryzek (as cited by Dutwin, 2002) suggested that deliberation is communication that produces reflection upon preferences in a non-coercive fashion. The definitions of deliberation presented in this study do not suggest that a deliberation is a debate nor should take on a heated tone. Cristina Dicicco shared in her online essay that "a deliberation is more of a discussion where there is no winner or loser, but rather a consensual conclusion from a combination of ideas and thoughts" (Dicicco, 2014). After a review of the data and literature on deliberation set forth previously, this researcher concludes that the groups in this study engaged in a casual deliberation. "Casual deliberations are used in everyday life, like casually discussing a certain topic that is open for interpretation with friends" (Dicicco, 2014). Casual deliberations are an extension of a discussion in which people share information and opinions, try to find common ground and reach decisions. Utilizing this perspective helps the researcher answer research question #1—How does the professional learning community deliberate to improve student learning? Although they lacked the deliberative process knowledge and supports to have deep conversations surrounding students, the teachers reported that they shared opinions on resources and teaching strategies that should be used with students. They listened to one another and gained knowledge from their interactions with each other. They shared personal experiences, asked deliberative questions focused on "what should we teach," participated equally, and engaged in the topics of discussion to inform their own professional decisions. In these ways, the PLCs deliberated to improve their instructional practice.

The impact of this casual deliberation on the PLC planning conversations—research question #2—follows what Dutwin (2002) asserted: in deliberation, forming opinions is less an

end goal and more the process of opinion formation itself; that is, what matters most is gaining knowledge, listening, learning to keep an open mind, coming into contact with a multitude of perspectives, experiences, ideas, and attitudes. Dutwin's thoughts provide a perfect example of what casual deliberation would look like and illustrate for the reader what the conversations in this study resembled. The teachers in this case study reported experiencing a similar expanding of their thinking based on the thoughts shared among group members. A high school teacher commented, "If you're getting more ideas than just yourself, you're getting a bigger radius that expands you." According to Dutwin, this personal growth is key to deliberation and serves to demonstrate the impact of deliberation on the teachers' planning conversations in this study. Considering that the PLCs deliberated casually, the researcher began to reflect on what elements could be added to the PLC to strengthen the deliberation in the future. Based on the literature and the data collected in this study, a learning structure or discussion protocol might be inserted into the community along with a trained facilitator, who could enable deeper deliberations regarding student learning.

Learning structure. If teachers are expected to engage in deliberative conversations about student learning through their PLCs, then they must be provided with the tools and organization to enable this type of talk. A middle school teacher new to the district said "this group functions differently than the PLC at my previous school. At my other school, they looked at data and planned together." This teacher commented that she felt that looking at student data was valuable and would like to see a more structured approach implemented in this district. In the interviews, teachers remarked that it would have been helpful to have a discussion protocol to guide them. One high school teacher stated in an interview that she "doesn't want anybody to feel like they aren't good. We are all at a different level with our knowledge and without a

protocol we don't tend to discuss student issues" because it is too uncomfortable. An elementary teacher stated, "Having some type of structure would be helpful." Darling-Hammond et al. (2009) pointed out that learning teams should follow a cycle of continuous improvement that begins with (a) examining student data to determine the areas of greatest student need, (b) pinpointing areas where additional educator learning is necessary, (c) identifying and creating learning experiences to address these adult needs, (d) developing powerful lessons and assessments, (e) applying new strategies in the classroom, (f) refining new learning into more powerful lessons and assessments, (g) reflecting on the impact on student learning, and (h) repeating the cycle with new goals. In this case study, the elementary and high school PLCs did develop lessons and assessments and some members reported that they attempted to apply new strategies in the classroom but none of the other elements mentioned above were observed. Moreover, due to the fact that these activities took place in isolation apart from a cycle of continuous improvement, they lacked the power that they could have had on teacher and student learning had they been part of a learning structure. Teachers need a protocol that encompasses the elements of such a cycle and makes clear to the teachers what is expected of them. There are several protocols discussed in the literature that could be used to facilitate these conversations such as the Data Teams experience (McNulty et. al, 2011), the Lesson Study approach (Lewis et al., 2009) or the Pearson Learning Teams Protocol (Abbot et al., 2010). Basically these three models contain similar elements and provide for collaborative, structured conversations that focus on the effectiveness of teaching and learning that could be used to advance the purposes of a PLC—improved student learning and enhanced teacher learning.

Group facilitator. Drawing from the researcher's experience, inserting a learning structure into PLC conversations could increase the proficiency of the group to have discussions

around student learning; however, adding a trained group facilitator to assist in the implementation of the protocol might impact the group's productivity even more. In this case study, only the middle school PLC had an identified group facilitator.

Stromer-Galley's (2007) framework includes a separate analysis for the facilitator. Based on the coding framework, the middle school facilitator's contributions break down as follows:

- the facilitator made 101 of the 225 statements or 45% of Speaker Talk
- 40 statements were problem talk focused on resources, topic #1
- 17 statements were problem talk focused on conference sessions, topic #2
- 21 statements were problem talk focused on department business, topic #3
- 15 statements were social talk coded as chit chat
- 3 statements were metatalk, agreement
- 5 statements were metatalk, inviting others to speak

Stromer-Galley (2007) suggested that good facilitation might be helpful in promoting good deliberation. As outlined above, the middle school group facilitator made 78 problem statements. This means that 78/101 (77%) of the comments she made were focused on the topic being discussed. This indicates that she did a satisfactory job in keeping the conversation focused on the stated topics; moreover, 15% of her comments were social talk, chit chat comments. At first glance, one might consider this to be a waste of time; however, according to Stromer-Galley's (2007) definition of social talk, this talk involves team bonding. Representative comments of this type made by the middle school facilitator include asking participants "How many children do you have?" and "Where did you go to college?" in an attempt to help the group learn more about each other on a personal level. This form of social

talk is something a good leader would do to build mutual trust and respect. One could argue that the middle school facilitator had an awareness of some basic communication processes as she made attempts to invite group members to speak on several occasions and she made attempts to engage with participants on a personal level; however, considering that her Speaker Talk accounted for 45% of the statements, she clearly did not understand the role of the facilitator in establishing systems to support and encourage *teacher* thinking and talk.

Lipton and Wellman (2011) stress the importance of a facilitator who can help teachers maintain a focus on the group's goal through various challenges that may arise. They have set forth the following characteristics of an effective group facilitator, which the researcher compares to her observations of the middle school leader:

- always focused on data about student learning and directed toward increasing that learning—*the middle school group facilitator did not focus on student data during the observed discussions*
- pays attention to the tensions that arise in groups and work to diminish them—*no conflicts or disagreements were recorded during the middle school conversations, most probably because the topics were non-controversial*
- provides outcome clarity for tasks, for relationships and for processes—*this process was not observed in the attended sessions*
- holds clear standards for performance and continually monitors progress towards those ideas—*this process was not observed*
- monitors and adjusts the tone and affect of their responses and inquiries to group members to support and invite thinking—*the group leader made 5/101 statements that invited the thoughts of others during the recorded conversations*

- has knowledge of developmentally appropriate skill goals for individual group members, ways to monitor skills and to document growth and progress—*this process was not observed*
- uses visuals for sharing ideas—*the group leader brought visuals (e.g., pamphlets and brochures) from the conference she attended to share with the group*
- uses pronouns with purpose, such as our work, your work, or the work—*this technique was not analyzed as part of this study.*

When group leaders employ the above-mentioned strategies, Lipton and Wellman (2011) suggested that a group will be more effective in its work. Considering that the researcher observed only two of the eight characteristics in the middle school group leader, it is apparent that this individual did not have a firm understanding of how a facilitator should function as defined in the research and literature on PLCs. In the interviews, two of the middle school group members, one of which was the group leader, commented that a group facilitator was an important part of the PLC, especially in terms of keeping the group on task and providing accountability for teachers' attendance. A female teacher commented, "It is good to have a facilitator to keep things on track." The group facilitator remarked: "having a group leader is good because (a) it helps the group stay on track and (b) provides an element of accountability for the teachers. They know they must attend because someone is keeping track of their presence."

Teachers at the high school and elementary levels commented that they believe a group facilitator would have helped them go deeper in their conversations. An elementary teacher stated, "There were times we got off track and having a designated facilitator would help us stay on track." A colleague said that a facilitator would help "because I think we tend to get off task

a bit." As demonstrated above, their perception of the group leader is one who keeps them on track and holds them accountable to the topic and the time, which the middle school facilitator did accomplish. Although these are necessary procedures for a facilitator to establish, a facilitator must have knowledge of and be able to implement more substantial processes. He or she must truly become a procedural expert in order to enable the group to engage in more substantive conversations (Schuman, 1996). Schuman (1996) suggested that the facilitator takes a strategic and comprehensive view of the problem-solving and decision-making processes and selects the specific methods that match the group's needs and the tasks at hand. By having knowledge of the learning structures described previously, the facilitator would be better equipped to select a protocol that would fit the present group member's skills and understandings. A learning structure would also provide the facilitator with greater insight into how the group conversations should be organized and procedurally managed. Schuman (1996) painted a picture of the facilitator as a procedural expert who can manage a number of different processes during any one meeting in order for the group to function effectively. Based on the evidence presented, the middle school facilitator did not implement a variety of processes to allow for her group to have substantive conversations regarding student learning. As a result, the middle school group functioned similar to the other two groups, which did not have designated facilitators, in that the middle school group was not able to establish procedures allowing them to follow a cycle of continuous improvement by collectively analyzing student data and using that information to guide instruction. In fact, in this case, having an untrained facilitator may have served to inhibit group conversation by setting up a situation in which the facilitator felt the need to direct the discussions, which, again, is supported by the percentage of Speaker Talk reported on this individual. As Stoll et al (2006) pointed out the group facilitator's job is to create the

conditions for the characteristics of effective PLCs to develop. The middle school facilitator did what she knew how to do—manage the meetings. Administration must provide guidance, training, and empowerment related to the substantive processes a facilitator must master in order for those characteristics to develop. Infusing a trained facilitator along with a discussion protocol into the PLCs would allow the groups to focus on student learning and help them engage in conversations surrounding student data. This addition to the group might enable them to become more productive in this regard and to be able to engage in richer, more reasoned deliberation. As the evidence shows, the mere act of appointing a group facilitator to lead the group without training him or her in procedures to facilitate conversations does not result in student-focused discussions. Until this occurs, Dufour's (2004) assertion will continue to be realized, and the mere act of grouping educators will not result in highly functioning PLCs. Considering that the groups lacked a learning structure and a trained facilitator, which may have inhibited their deliberations regarding student learning, this researcher wondered what topics the members were comfortable discussing?

Comfort continuum. Based on the analysis of the video-taped lessons, reflection sheets, and teacher interviews, the results depicted previously in Tables 6, 9 and 12 indicate that teachers viewed the PLC as a means of sharing professional expertise, especially with regard to research-based strategies and instructional resources. On occasion, they did share a personal experience related to the resources they shared. They less frequently discussed the actual implementation of a strategy. Also noted in the analysis was the lack of talk surrounding student data. Teachers recognized the importance of examining student data as it relates to student learning, but they expressed a lack of comfort for engaging in these discussions, especially as they relate to their own practice.

If the researcher were to create a "comfort continuum" that illustrates what the data suggests in regards to PLC conversations it might look like Figure 16:

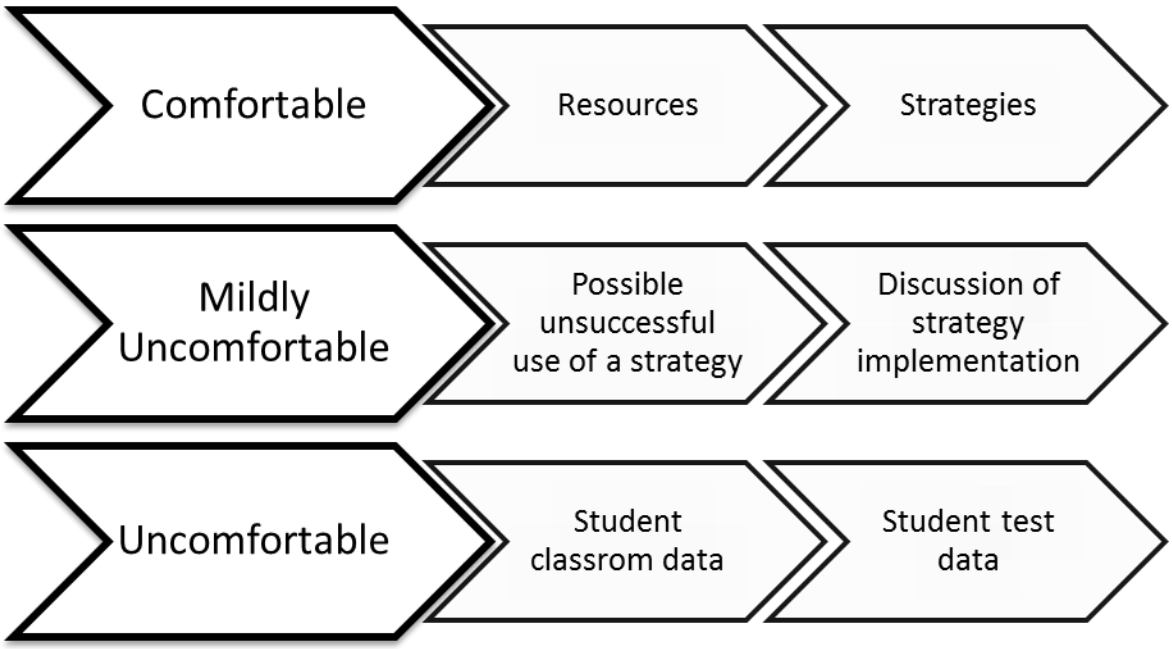

Figure 16. Comfort continuum illustration.

Comfortable topics. As reported earlier, teachers in all PLCs shared professional expertise regarding resources and strategies, and comments made indicated that they were comfortable with this sharing and enjoyed learning about new strategies from their peers. One teacher stated appreciatively that, "I feel like I've been exposed to a lot of new things." They valued the learning that came from the exchange of these instructional materials because it appears that they viewed this edification as an indirect means to enhancing their students' learning experience; it added "tools to their toolkit." The immediate focus of this discourse was on strengthening the teachers' learning by exposing them to new tools but the underlying assumption was that the teachers would implement those devices in the classroom in order to improve their students' learning. One teacher commented that "the strategies that we talk

about… I find myself using a lot" in the classroom. Discussion of strategies was a comfortable PLC experience for teachers; however, the reader will see that talking about the resource or strategy more directly in terms of student learning became more uncomfortable for the teachers.

Mildly uncomfortable topics. Because the actual integration of a strategy was seemingly tied to a teacher's self-efficacy with that particular strategy, especially in the upper grades, it was not frequently discussed. The middle school group spent a considerable amount of time during the observed period either discussing a resource/strategy or learning about one. When asked how many of these resources they had implemented in their classroom this year, three of the group members responded—none. The group facilitator indicated she had implemented the one that she shared with the group. Teachers indicated in interviews that they needed to feel comfortable with a strategy before implementing it, which makes sense considering that many of the resources shared at the middle school level involved technology such as temperature probes. Implementation of these tools requires more planning and preparation on the part of the teacher to be able to use them successfully with students. One of the three group members who had not implemented a strategy commented that, "I must have the time to try it and work with it. I have to learn more about it and satisfy my knowledge base. I have to feel confident in my abilities to actually implement it in front of students". A male counterpart stated that "I must have time to try the strategy or resource and problem solve before I implement with students." He shared that he tried one of the strategies the presenter suggested with a few students after a lesson one day and they could not access the website that was needed. For reasons like that, he stated that he "didn't want to try it with the entire class until I have time to work through it and overcome any obstacles encountered".

Additionally, there seemed to be a perception at the upper grades that students were more critical consumers of classroom lessons, which resulted in teachers not wanting to look "goofy" instructing the strategy. They want to ensure that they can utilize the strategy successfully before implementing it with their students. One high school teacher stated that, "I have to see myself doing it without looking goofy. I think that if I'm not comfortable with it then my kids just won't buy into it." Her colleague commented that when ideas are shared, "I think what I would look like teaching that. I know my kids and I try to visualize if it will go over well with them." Minimal discussion of this topic in the upper grades may stem from teachers not wanting their peers to know they didn't feel immediately confident with the strategy thinking it may somehow reflect on their competency as a teacher. If a teacher tries a strategy and it fails, especially one deemed 'research-based', he/she may believe that the failure was due to teacher error rather than understanding that any strategy requires practice in order to be implemented effectively.

Interestingly, comments about needing to feel comfortable with a strategy before implementing it were not made by the elementary teachers. An elementary teacher said she was "always willing to try what they say." If a peer had a positive experience with a strategy then they stated that they were likely to try it. They expressed no thoughts about needing to feel comfortable with the strategy. This could reflect their belief that elementary students would not notice or would be more forgiving if they made a mistake.

This analysis is not supported in the other data outside of the interviews, however. This topic did not arise in the recorded conversations and, therefore, would not be reflected in those transcripts. Additionally, it was not a question that the teachers were asked to reflect on as part of the reflection sheets they completed. It can, however, be supported by researcher confirmation that none of the strategies discussed during PLC were observed in the video-taped lessons.

Uncomfortable topics. Talking about student data moves teachers to a level of discomfort on the continuum. Apparently a feeling of mutual trust had not been developed in the PLCs for this type of conversation. References were made by the teachers to not wanting to make someone feel "like a bad teacher" if their students' scores were not as good as another group member's students. Obviously, talking about student scores can be interpreted as a reflection of a teacher's performance, and in a group that has not been trained to conduct data analysis and in which no group norms had been established, this conversation can be a scary venture. Referring to their hesitancy in addressing student learning and data, an elementary teacher commented that, "I think a lot of it is really just uncomfort. I would like to talk about that next year. I felt like I was taking data independently. We would all need to get on the same page to be able to come back together and discuss that."

Another elementary teacher said "honestly we haven't shared student work. It probably needs to be more like that." A high school teacher stated "we just really skipped it so that we didn't make people feel like they weren't a good teacher. There wasn't a comfort level for that yet." A colleague said " I think that maybe if all my kids are missing one question, I don't really want to admit that to them (PLC). I compare myself to last year. This year my kids really got this better than last and I ask myself what did I do differently." Another group member stated "I think that's what we are gonna go for next year. We were just getting comfortable discussing that and we wanted next year to really dive in deeper with that 'cause we were just getting comfortable. Because it is hard to ask for help, so that is something we wanted to do next year."

However, not talking about student data raises questions about whether or not a PLC is effective, as the reader is reminded that an "undeviating focus" (Bolam et al., 2005, p. 8) on all students' learning is one of the characteristics of an effective PLC. This issue will be examined

further in the following sections as the researcher reflects on what the literature says about PLC effectiveness and compares it to what was learned about the PLCs.

Emerging themes

In conducting the analysis detailed above, the researcher discovered that the transcripts of the conversations could only provide a limited amount of insight into PLC deliberations. Digging further and examining other data sources such as the videos of classroom lessons, reflection sheets and teacher interviews was necessary pose an answer to research question #3—How do teachers perceive the relationship between their PLC deliberations and their instructional decisions? As reported earlier, that analysis highlighted several themes that emerged in the data.

The analysis of the video-taped lessons and corresponding reflection sheets suggested that teachers shared research-based strategies, which was supported by how they discussed such strategies during their PLC meetings. For the purposes of this case study, research-based strategies will be defined as those that the teachers had an awareness of as having been tested and shown to have a positive impact on student achievement. During the interviews, it became apparent that, while the teachers acknowledged the PLCs as a vehicle to share professional expertise, they also seemingly struggled addressing student learning, especially in terms of analyzing student data. The following discussion demonstrates how the researcher confirmed these themes in the data sources. It should be noted that because the sharing of professional expertise often included research-based strategies, the researcher has chosen to discuss these two themes together.

Sharing professional expertise & research-based strategies. The teachers reported that they shared professional expertise and learned about new strategies and resources in their PLC, which expanded them personally. All teachers stated that they learned something new from

attending the PLC meetings. In the interviews, a theme that emerged was that the PLC is a vehicle for sharing professional expertise regarding resources and instructional strategies among the teachers, especially those that were research-based. In fact, the middle school PLC used the collaboration time almost exclusively to promote group and individual learning related to strategies that could be used to advance student learning. At three of those sessions, an outside presenter came to share either a website or a tool with the teachers. The presenter had them practice using the website or tool during their time together, and the researcher noted that the presenter described these resources as research-based. These three sessions contained an element of professional development as the presenter shared an instructional focus regarding the implementation of the resource. The other two sessions were slightly different in that the sharing of resources did not necessarily include an instructional component. They did not practice using the resource, but offered elaboration on occasion regarding their experience with the resource. Transcripts support that the middle school teachers talked about these resources in terms of time and money needed to implement them. In sharing a resource she learned about at a recent conference, the middle school group leader stated during a PLC session, "Hyper Science 3-D: that was so cool. We would need $35,000 (to purchase it). . . but think of the money we could save on frogs" as this resource would allow students to complete a virtual dissection.

This theme of using PLCs as a vehicle to share research-based resources and strategies and promote group and individual learning appeared at other grade levels as well. An elementary teacher reported in an interview that she "wouldn't have known about Engage New York [a website of resources] if it wasn't for the discussions with our team." Another teacher stated that he used a Kagan Cooperative Learning strategy that he had learned from his PLC colleagues. He added that he has "definitely incorporated those strategies whereas I don't know

that I would have without those discussions." Supported in the reflection sheets are statements demonstrating that teachers recognized that many of the strategies they discussed had a research base. A teacher commented that she used "Kagan and a variety of structures they talked about based on. . . research showing their effectiveness." Another teacher said she believed that "a lot of what her teammates say and do is research-based so I am always willing to try what they say." It appears that this teacher had knowledge of research-based strategies and a belief that those strategies would be worth her time to try. Additionally, the researcher observed research-based strategies such as cooperative learning, eliciting prior knowledge, and modeling/direct instruction being used during the video-taped classroom lessons. However, the researcher did not observe any of the specific strategies that had been discussed in the PLC sessions attended during her classroom observations. One explanation for that may be that the classroom observations did not directly follow any of the PLC sessions but rather took place at the end of the study. Moreover, the teachers never discussed the specific research behind the strategies. Doing so might have opened a door for them to talk about the use of the strategy with their own students but they appeared to be satisfied that the strategy had been successful with students somewhere.

Given the teachers' apparent interest in research-based strategies, the researcher wondered if there were other factors that might motivate a teacher to consider implementing a new strategy. The researcher examined the data sources and found that teachers are also persuaded to consider trying a new strategy based on the positive experience their peers have had with the strategy as well as the level of engagement it will provide for students. In interviews, an elementary teacher pointed out, "You've heard that they had success so that influences you to try." A teacher in the middle school group commented in an interview, "A person's positive

experience with the strategy or resource would encourage me to try it. Plus I consider how engaging it will be for my students." A high school teacher remarked that her group members "are really good at finding fun ways to do a worksheet and they always share. I feel like I've been exposed to a lot of new things that make learning fun for kids."

Addressing student data. Given that none of the PLCs discussed individual students or analyzed student data in order to inform instruction during the PLC meetings, the researcher asked teachers about it in a follow-up question during the interviews. Teachers at all levels expressed that this was a challenge for them in that it could be uncomfortable and one must be very vulnerable to be able to do this. At the middle school, while the PLC devoted several sessions to sharing resources, the topic of student data analysis during PLC was more of a foreign concept. When asked, the group facilitator restated that the design of the PLC is how it has been since the groups were formed seven years ago. One middle school teacher did not feel that type of discussion would be beneficial in that group. He preferred to collaborate with his grade level peer but never stated that data analysis was part of those discussions. Another teacher said that, "this group functions differently than the PLC at my previous school. At my other school, they looked at data and planned together." She felt that data analysis was worthwhile but she is the "new kid" at this school and she "is still learning how it works here." Several teachers recognize that this type of work is important and as noted above want to do it in the future; however, knowing how to engage in these conversations is a challenge and, as noted previously, teachers need support, guidance and a structure to be able to facilitate these types of discussions as not all topics of conversation are evidently ones that teachers are comfortable discussing. The researcher learned that the PLCs in this study may be a great vehicle for sharing expertise and

promoting teacher learning, but they struggle with maintaining an undeviating focus on student learning.

Given how the PLCs struggled with focusing on student learning, this led the researcher to question whether and how they aligned with the characteristics of an effective PLC. The researcher now attempts to provide a holistic analysis of what occurred in light of what the literature suggests makes for an effective PLC.

Effective PLCs.The research on PLCs identified eight characteristics that should be present in order for a PLC to be deemed effective and thus able to advance teacher and student learning (Bolam et al., 2005; Stoll et al., 2006). Those characteristics include: (a) shared vision and values, (b) collective responsibility, (c) mutual trust, (d) collaborate, (e) group as well as individual learning is promoted, (f) reflective professional inquiry, (g) inclusive membership, and (h) openness, networks and partnerships beyond the school. In a review of the data related to the observed PLCS, it was discovered that there were only two characteristics displayed by the groups in this study. The data supports that (e) group as well as individual learning was promoted and (d) collaboration occurred, although both were evident on a surface level only, and suggests why the PLCs failed to exhibit several other characteristics.

The reader is reminded that, according to the literature on effective PLCs, when group as well as individual learning is promoted educators will not only maximize their collective knowledge and skills but also facilitate their learning of new knowledge and skills (Supovitz, 2002). All teachers become learners alongside their colleagues in order to attend to the learning needs of their students (Vescio et al., 2007). While the teachers did learn new knowledge and skills alongside their colleagues, individually and collectively the participants discussed the strategies or resources as useful “ideas”, not as ways to foster student learning.

Collaboration is another characteristic of effective PLCs that was observed in the elementary and high school groups on a limited basis. Participants engaged in the deconstruction of knowledge through reflection and analysis and its co-construction through collaborative learning with peers which Bolam et al., (2005) suggests is an element of this characteristic. A high school teacher said she valued PLC time because she would bring strategies to the group "and they help me see the issues and we work together and fix it." She drew on the experience that others had with certain strategies, which helped her to better understand how to use the device. They created plans for instruction collectively, but they did not set goals for themselves or monitor their performance, which Lipton & Wellman, (2011) asserts is a part of collaboration. Supovitz (2002) offers that in collaboration teachers co-teach, observe each other in the act of teaching and analyze student data; however, the groups in this study did not engage in any of those tasks. For these reasons, the researcher concludes that the characteristic of collaboration was never developed to a degree of effectiveness. Other than group and individual learning and collaboration, the groups apparently did not think of themselves in terms of the characteristics listed above. The elementary and high school teachers operationalized the PLC as a group of teachers who met and planned together the strategies necessary to teach students the required concepts, but they operated with autonomy in their own classrooms. The middle school teachers had come to view the PLC as group of teachers who met and discussed items of shared interest, but who function largely as individuals and not as a community of teachers.

Supovitz (2002) showed that communities did not develop when teams lacked access to opportunities and experiences that would model for them how to engage in the investigations necessary to develop and sustain communities of instructional practice. All of the PLCs lacked these expectations, models and training. With no functioning knowledge of what a PLC should

look like, the teachers developed a system that they were comfortable with and that they thought would fulfill the requirements of the negotiated agreement. However, other than having a set time and being organized into groups, the teams in this study did not have the tools or opportunities they needed to become effective learning communities.

An effective PLC shared vision requires the team members to have a sense of purpose with an "undeviating focus" (Bolam et al., 2005, p. 8) on all students' learning. Collective responsibility involves teachers meeting regularly in learning teams organized by grade-level or content area assignments and sharing responsibility for their students' success (Stoll et al., 2006).

What would it look like if teachers took collective responsibility for their students? Based on the Pearson Learning Teams Protocol (Abbot et al., 2010), the following elements might be seen: (a) teachers analyzing their student data together and looking at areas of student need demonstrated in the data, (b) teachers setting a common goal based on the student need and creating an action plan to meet that goal together, (c) teachers developing a common lesson that they would each deliver to their students surrounding this goal and then bringing back student work samples to determine if the goal had been met, (d) teachers deciding if they needed to reteach or revise the lesson or if the goal had been met, determining the next area of need to be addressed. The only evidence the researcher saw of such collective responsibility was when the high school teachers came together to plan a common geometry lesson and subsequent test. However, they had no discussion of student performance related to this planning and test creation, no revision of the lesson and test, or reflection upon their work products. They simply moved on to the next lesson that they needed to plan.

If teachers merely come together to plan and discuss common interests, then they may not believe they share responsibility for the learning of each other's students. If they do not feel

responsible for all students, then understandably, sharing student data would be difficult. They might have the mindset that "I am responsible for my class and you are responsible for your class." Moreover, if teachers think that students' scores reflect a teacher's performance, then that information becomes a very private matter—something that in their minds might exist between the administrator and the teacher. If teachers believe they are responsible only to their own students, then they would not want to presume to tell their colleagues how to instruct students, believing that each teacher knows his or her own students and what is best for them. This belief would account for the "opt-out" option that teachers in this study referenced. They knew that, according to their negotiated agreement, they had to come together during PLC time to plan; however, if the design of the plan did not fit with their personality or what they felt was best for their students, they would return to their classrooms and change the portion of the plan they did not feel met their needs. Opting out diminished disagreements and resulted in teachers functioning more as discrete individuals within their own classrooms rather than a learning community sharing a vision and taking joint responsibility for their students' success.

A shared vision and collective responsibility is something that is built through administrative expectations and trained facilitators who can help develop these characteristics as well as create mutual trust among the teachers. District and building leaders need to provide opportunities for collaborating teachers to discuss student performance standards and to consider how their instruction produces learning. These measures will enable teachers to decide what matters to their community and their shared students (Supovitz & Christman, 2005).

In thinking about how the teachers' perceived the relationship between the PLC deliberations and their instructional decisions, participants most often remarked that the deliberative process was very helpful in that it offered an opportunity to hear others' opinions,

experiences, situations, and needs. Many openly stated that they learned much from their discussions and thought about things differently as a result of those conversations. One elementary teacher commented that, "a lot of the strategies that we talk about that they've tried, I find myself using a lot. I feel like I've been exposed to a lot of new things." Cooley (as cited by Dutwin, 2002) argued that political contact brings "enlargement," that individuals are broadened by coming into relation with others. Teachers agreed that they learned new strategies from their peers and were generally excited about what they learned. However, the elementary teachers and the high school teachers reported trying the new strategies or adapting them more often than the middle school teachers did. None of the groups took collective responsibility for students. Due to the casual nature of their deliberations, they appeared to view the outcome of the deliberations as optional. There was no learning structure or leader that compelled consensus. It was their choice as to what they would do with the new knowledge. If they didn't feel comfortable with the decisions reached or feel a certain approach utilized in a lesson would meet the needs of their students, they could opt not to use it. Any apparent consensus reached from the deliberations applied only as far as the meeting room door.

Despite these shortcomings, the teachers did perceive there was value in the deliberations. One teacher stated, "If you're getting more ideas than just yourself, you're getting a bigger radius that expands you." As Lasch (1995) points out, the deliberative experience enables teachers to solidify their perspectives on pedagogy and develop more sophisticated viewpoints on the topics discussed which is representative of the "expanding" of the mind that teachers reported in this study. This enlightenment provides teachers with a greater knowledge of pedagogical options -- more "tools in their toolkit"-- to utilize based on their students' needs as

they see fit and this is what exemplifies how the teachers' perceived the relationship between the teachers' deliberations in PLC and their instructional decisions in this study.

Recalling that the teachers in this study lacked the training and guidance to engage in a continuous cycle of improvement and to develop the characteristics of effective PLCs, the researcher offers several recommendations related to this initiative in the following section. Additionally, the researcher points out areas of continued research needed in regards to PLCs.

CHAPTER V—CONCLUSIONS AND RECOMMENDATIONS

Concluding thoughts. The purpose of this study was to understand how deliberation in PLCs influences teaching and learning in schools. Based on the literature review in Chapter II and the findings presented in Chapter IV, the following conclusions can be drawn about the nature of deliberation in PLCs. These findings are interpreted using the conceptual framework of the deliberative democratic theory which states that when group members provide reasons or justification for a stated position and all group members are included in the conversation, then information acquired by the group members increases and affects individual decision-making. The rival theory supposes that when group members do not provide justification for their thinking and everyone does not participate in the conversation, then it is no different than a regular discussion. The secondary theory applied was the proposition that if a group is displaying the characteristics of an effective PLC as identified in the research, the group is considered effective and the rival notion that if a PLC does not display the characteristics of an effective PLC, then it is not effective.

First, the data demonstrated that reason giving (i.e. reasoned opinion expression) was present in the PLC conversations. Approximately, ¼ of the problem talk statements made in each PLC expressed an opinion. Teachers offered opinions on the topics being considered using, for the most part, their personal experiences as a source for those opinions. In addition, the percentage of Speaker Talk was calculated which demonstrated that there was a relatively equal level of participation among the group members. Did these reasoned opinion expressions and inclusion in the conversation affect teachers' decisions? Statements made by group members in this study indicated that they learned new strategies from their colleagues which added "tools to

their toolkit" and gave them the knowledge necessary to inform instructional decisions regarding students. The fact that there was little disagreement in the conversations which would serve to further develop a teacher's perspective would offer support for the rival theory in regards to deliberation; however, one must remember the professional setting in which this deliberation occurred could have hindered disagreement and the fact that when personal experience is used as a source, as it often was in these conversations, disagreement is diminished. Moreover, these considerations do not overshadow the teachers' comments demonstrating that, especially at the elementary level, they used the information they acquired with students in their classroom. Therefore, the researcher can state confidently that deliberation was present and served to inform teachers' instructional decisions. It is the researcher's assertion that deliberation fits well into the PLC model as "deliberations are used in everyday life, like casually discussing a certain topic that is open for interpretation with friends" (Dicicco, 2014). As shown in this study, casual deliberation will naturally occur in PLC conversations without any training necessary. However, if the goal is to deepen these deliberations, it is thought that more structure and training would prove helpful.

Second, out of the eight characteristics identified in the literature that suggest a PLC is effective, only two were evident in the PLCs in this study. All groups displayed the characteristic of group as well as individual learning and showed elements of collaboration. Teachers in the PLCs at all levels expressed the fact that they learned new strategies and gained fresh insights from participating in the sessions. Moreover, they collectively planned together and in several sessions de-constructed and co-constructed knowledge as they analyzed different teaching strategies. Other elements of collaboration as defined in the literature such as peer

observation, setting goals and reflecting on practice were missing. Considering this and the fact that there were six other characteristics of effective PLCs that were not demonstrated by these groups, the rival notion of the secondary theory is strongly supported and the researcher must conclude that the PLCs observed had not yet developed to a high degree of effectiveness. Reflecting on these conclusions, the researcher considers future needs in regards to the PLC initiative and research surrounding it.

Recommendations. For the most part, theories on deliberation have been tested in the political arena. Analysis frameworks for these deliberative discussions do not easily transfer to other settings. Future research needs to develop and test formulations that address how deliberations are conducted in other fields, particularly in the educational realm. One limitation of this study, with the current analysis schema available, is the professional setting in which the conversations occurred. It became obvious that deliberation may exist differently in situations in which participants must maintain a professional relationship with others on a daily basis. As the researcher demonstrated, one element of deliberation that was missing for the most part was that of disagreement. In many school settings, disagreements are not always viewed as a positive contribution to the building culture; however, as Stromer-Galley (2007) pointed out, people who differ on a position are more likely to have their own views further examined and strengthened in a more rational way when they are exposed to disagreement. If this is an essential element of deliberation, then further research needs to be conducted into a) how deliberation is occurring in the professional setting and b) an approach that could be used to facilitate deliberation in this climate that would enable all of the identified elements. When all of the elements are present, that would indicate that teachers' opinions are being examined and revised and that instructional

decisions are being impacted in a way that benefits students. This research would provide districts with the knowledge they need to better equip teachers to hold rich deliberations in the professional world.

Based on the information presented above, the researcher can confirm an earlier assertion that professional learning communities can be used as a vehicle used to provide on-going, job-embedded professional development to teachers. Schools implementing this approach shift the organization and structure of their professional development efforts toward integrating teacher learning into communities of practice (Vescio et al., 2007). PLCs at each level in this study utilized a portion of the time they had sharing expertise, learning about new instructional strategies and collaboratively planning together in order to better engage and assist students in their learning. An elementary teacher commented that, "I feel like I have been exposed to a lot of new things" through the PLC conversations. As evidenced in teacher comments such as this one, PLC sessions appeared to be valuable in the eyes of the educators as a means of promoting teacher learning. However, the reader will recall that many of the teachers in this study did not immediately implement the tools that were shared. A middle school teacher stated that "I must have the time to try it and work with it. I have to learn more about it and satisfy my knowledge base." The field would benefit from further research in this area to determine a) other factors that influence implementation and b) whether utilizing the PLC to provide professional learning actually leads to greater advances in student learning than does a more traditional approach to professional development.

As the researcher demonstrated previously none of the observed PLCs were able to have substantive deliberations surrounding student data. She suggested that incorporating a learning structure and a trained facilitator into the PLC would enable the groups to engage in authentic

deliberations surrounding student achievement. Darling-Hammond et al. (2009), points out that learning teams should follow a cycle of continuous improvement which this study showed could occur through the use of several learning structures that are currently available. Schuman (1996) suggests that the facilitator takes a strategic and comprehensive view of the problem-solving and decision-making processes and selects the specific methods that match the group's needs and the tasks at hand. The facilitator needs training and support in order to be able to accomplish these tasks. Supovitz (2005) states that district and building leaders need a firm knowledge base about how effective instructional communities work. These leaders must then provide the communities with the necessary structures to help teachers hone their instructional craft. Another call for future research exists with this recommendation and the need to determine the actual impact that both a learning structure and a trained facilitator can have on PLC deliberations in order to confirm the researcher's recommendation and to consider if one type of learning structure or process of training a facilitator is more effective than another.

Finally, as suggested earlier by the researcher, future research could attempt to establish a causal relationship between the work that happens in a PLC and changed instructional practice in the classroom. Does that then result in improved student achievement? Although Louis & Marks (1998) and Rosenholtz (1989) have found that students achieve at higher levels in schools with positive professional communities, Bolam et al. (2005) showed that in PLCs where teachers did not engage in structured work focused around student learning, gains in student achievement were not evident. More research is needed in this area to firmly establish the conditions that must be present in order for the work of the PLC to be able to advance student achievement. Without this information, it is feared that the PLC initiative will continue to produce inconsistent results, especially in the school district involved in this study.

Understanding the outcomes of these endeavors on teaching practice and student learning is crucial, particularly in today's era of accountability (Vescio et al., 2007). When evaluating PLCs, effectiveness should be judged on the impact on student learning and social development, impact on professional learning, performance and morale and operational performance as a PLC (Bolam et al., 2005). In this way, districts can be satisfied that they are receiving a return on their investment into PLCs as a means of improving teacher learning and student achievement.

CONCEPT DEFINITIONS

- *Accountability* = the level to which educators must answer to policymakers for the teaching and learning that occurs in schools
- *Deliberation* = theory premised on reason giving (providing justification for a certain position) and inclusion (hearing all participants)
- *Educational reform* = program of educational change
- *Professional development* = a comprehensive, sustained approach to improving teachers' professional knowledge, skills and effectiveness
- *Professional learning community (PLC)* = a group of people sharing and critically interrogating their practice in an ongoing, reflective, collaborative, inclusive, learning-oriented, growth-promoting environment

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APPENDIX

Reflection Questions

After viewing the video of your classroom lesson, please answer the following questions:

1. What do you believe were the strengths of this lesson? What went well?

2. What, if any, challenges were encountered during this lesson that you hadn't anticipated?

3. How did you decide which instructional strategies to use during this lesson?

4. How did you decide which resources/materials to use during this lesson?

5. What would you do differently next time?

6. When you reflect on your lessons, what do you do with the knowledge you gain from those reflections?

Interview Questions

1. How did discussions in your professional learning community impact your planning for this lesson?

2. To what extent did the conversations in your PLC impact the instructional strategies you chose to use in your lesson?

3. When you reflect on your work in your PLC this year, what learning did you acquire as a result of your participation in that group that has impacted your instruction and planning?

4. What new knowledge/skills have you acquired as a result of your participation in the PLC this year?

5. To what extent did your participation in your professional learning community impact your students' learning?

6. What worked well in your PLC?

7. What obstacles did your PLC encounter? How did your group deal with those obstacles?

8. What was the impact on the PLC of having (or not having) a designated group facilitator?

9. I noticed that there wasn't much disagreement in your conversations. Why do you think that was?

10. During many conversations you discussed resources and strategies but I never heard you analyze student data and discuss how the use of those strategies impacted specific kids. Can you share why?